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ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND
RELATED MATTERS.

Hearing held
8th floor
180 Dundas Street West
Toronto, Ontario

*Rowe X.
Ontved (cont'd)
Strathay.*

The Honourable Mr. Justice S.G.M. Grange

Commissioner

P.S.A. Lamek, Q.C.

Counsel

E.A. Cronk

Associate Counsel

Thomas Millar

Administrator

Transcript of evidence
for

August 23, 1983

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ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN
AND RELATED MATTERS.

Hearing held on the 8th Floor,
180 Dundas Street West, Toronto,
Ontario, on Tuesday the 23rd day
of August, 1983.

- - - -

THE HONOURABLE MR. JUSTICE S.G.M. GRANGE - Commissioner
THOMAS MILLAR - Administrator
MURRAY R. ELLIOT - Registrar

- - - -

APPEARANCES:

P.S.A. LAMEK, Q.C.)	Commission Counsel
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M. HAYES)	
T.C. MARSHALL, Q.C.)	Counsel for the Attorney-
D. HUNT)	General and Solicitor
L. CECCHETTO)	General of Ontario (Crown
	Attorneys and Coroner's Office)
I.J. ROLAND)	Counsel for The Hospital
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	Children
F. KITELY)	Counsel for the Registered
E. MCINTYRE)	Nurses' Association of Ontario
	and 35 Registered Nurses at
	The Hospital for Sick Children

(Cont'd)



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G.R. STRATHY) P. RAE)	Counsel for Phyllis Trayner - Nurse
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---Upon commencing at 10:00 a.m.

THE COMMISSIONER: Yes, Mr. Lamek,
you said you had something to say.

MR. LAMEK: Yes, Mr. Commissioner.
Rather belatedly and with apologies for that, I have
the list of names of the children who died at the
particular times who were plotted on the charts filed
by Dr. Gilmour-Bryson.

THE COMMISSIONER: All right.

MR. LAMEK: You will remember,
sir, I think it was you who asked to have the
children named who died in the particular time slots
that she plotted on the graph. There is attached
to the three-page document which has been distributed
to counsel a list of the times of death, together
with a statement of the source of each time, whether
it be from the discharge or death note or the nurse's
note.

THE COMMISSIONER: Does it go
with a particular exhibit?

MR. LAMEK: I'm afraid it's in
Volume 1, the volume I don't have with me,
Mr. Commissioner.

THE COMMISSIONER: Well, which chart
is it?



1
2
3 MR. LAMEK: It was the third of
4 the charts, Mr. Commissioner, the one plotting deaths
5 by time.

6 MR. STRATHY: Somewhere around
7 35, 36 or 37.

8 MR. LAMEK: Thank you, Mr. Strathy.

9 THE COMMISSIONER: Yes, it is 35.
10 Can we have that one out and perhaps 35A. This is
11 the chart On Ward Deaths by Time, and 35A was On Ward
12 Deaths by Time from 1 o'clock to 5 o'clock - at least
13 from 12 o'clock to 5 o'clock.

14 MR. LAMEK: That's correct, sir.

15 THE COMMISSIONER: Is it the
16 12 o'clock, 1 o'clock to 5 o'clock?

17 MR. LAMEK: In fact this is midnight
18 to 4 o'clock because you will remember that
19 Dr. Gilmour-Bryson was examined as to how the deaths
20 would fall if she took other four hour periods and
21 she said she had done that.

22 In any event, by time period these
23 are the children named.

24 THE COMMISSIONER: I wonder if I
25 could just see it so I can understand what apparently
I said in motion.

Well, do you want to give it a



1
2 separate number? The only reason I mentioned that
3 was it might fit in. There is a 34 or 35 and it would
4 be easier to find or track down, but whatever you
5 want to do now.

6 MR. LAMEK: I'm just trying to find
7 the place in the transcript, Mr. Commissioner, ~~at~~ *at*
8 which you asked for this.

9 Mr. Commissioner, Exhibit 37 was
10 On Ward Deaths by Time in Six-Hour Periods. Remember,
11 that was one of the additional charts that
12 Dr. Gilmour-Bryson produced and since part of this
13 document does name the children by six-hour periods
14 as well, perhaps we might for convenience call it 37A.
15 It will reply to this and to the previous chart.

16 THE COMMISSIONER: 37 has six-hour
17 periods, this one has not.

18 MR. LAMEK: *On* ~~And~~ its second page,
19 Mr. Commissioner, it has midnight to 4:00 and then
20 on the third page midnight to 6:00. It covers all
21 three variances; I think of the time periods that were
22 suggested.

23 THE COMMISSIONER: Well, do you
24 think that 37A is appropriate?

25 MR. LAMEK: I suggest 37A, yes, sir.

THE COMMISSIONER: All right, let's



1
2 make it 37A.

3 MR. LAMEK: Thank you.

4
5 ---EXHIBIT NO. 37A: Document entitled "On-Ward
Deaths by Time -- each period
6 equals nine months".

7 THE COMMISSIONER: All right. Now,
8 Mr. Ortved, yes, Dr. Rowe is here.

9 MR. ROLAND: Before you start with
10 Dr. Rowe, Mr. Commissioner, I gather from last week
11 there was a request for an English study made of
12 Dr. Rowe. I wasn't here, but I have been told that
and we have now copies of that study.

13 THE COMMISSIONER: Yes, all right.
14 All right, that will be Exhibit 139. What is the
15 English study, what is it on, Mr. Roland?

16 MR. ROLAND: It is infants of
17 very low birth weight.

18 THE COMMISSIONER: All right, it
19 will be Exhibit 139.

20 ---EXHIBIT NO. 139: Document entitled "Infants
of Very Low Birth Weight".

21 MR. ROLAND: I gather it was noted
22 as Footnote 11 in the McMaster Study.

23 THE COMMISSIONER: It's getting
24 too complicated. What number was the McMaster Study?
25



1
2 THE REGISTRAR: Exhibit 130.

3 THE COMMISSIONER: 130. Well, I
4 think we'll make it 139, anyway.

5 Yes, Mr. Ortved.

6 DR. RICHARD DESMOND ROWE, Resumed

7 EXAMINATION BY MR. ORTVED: (Continued)

8 MR. ORTVED: The first order of
9 business, Mr. Commissioner, is to make copies of
10 the agenda available. This agenda was mentioned
11 last Thursday as having been distributed to those
12 persons who were to attend the conference on January
13 12th, 1981 and were distributed with the other
14 materials, all of which have been filed. I'm not
15 sure whether or not I filed a copy of the agenda
16 but I certainly didn't have copies if I did for the
17 other counsel and I do today.

18 THE COMMISSIONER: All right.
19 We will make that Exxhibit 140.

20 ---EXHIBIT NO. 140: Document entitled "Discussion
21 of Cardiology Mortality with
22 Special Reference to Deaths
23 on 4AB".

24 MR. ORTVED: In the event I haven't
25 filed one, I will do that now. I have copies for
counsel.

Secondly, Mr. Commissioner, ---



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Rowe, ex.
(Ortved)

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THE COMMISSIONER: Oh, we haven't
the English report, it got to everyone except into
the exhibits.



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You will recall, Mr. Commissioner, last week that Mr. Scott in his final questioning of Dr. Rowe made reference to an exercise that Dr. Rowe had been asked to perform for the Atlanta people. Dr. Rowe did not have his copy of the example of the material that he had been asked to use in directing his efforts, with him. He undertook to bring that today and Mr. Scott was going to seek to file it. Perhaps rather than have Mr. Roland do that I have that copy with me.

THE COMMISSIONER: Exhibit 141.

--- EXHIBIT NO. 141: Severity of Illness and
Prognosis Classification -
1982.

MR. ORTVED: Q Now, Dr. Rowe, maybe I can just have you explain that document with the attached photocopy of the material on it.

A. You may recall that I couldn't recall the exact number of cases that I had been asked to examine by the Health Study Team Administry in this particular exercise, and I had to speak to people who were on that committee in order to clarify that, the exact circumstances of the exercise, because I didn't have any of the material remaining with me, it was all done and immediately returned to the Team.

It was pointed out to me that the



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necessary background in terms of methods and results are incorporated in the CBC report, pages 9 and 10, under the heading "4A and 4B, Ward Population, Severity of Illness and Prognosis". The sheet then simply amplifies a little more of what I was required by that exercise to do.

The main features were that I was asked to classify the anatomic disturbance as "mild, moderate or severe". In doing so, I set out an arbitrary scale in a way that was rather similar but not exactly the same as the New England Region Infant Cardiac Program severity scale. So that was the first part of the answer to each question.

The second question was the probability that death would occur, and my understanding was it was during that particular hospitalization, the particular hospitalization of any individual data that was thrown at me. That was done and I cannot recall whether that was decided by the committee, or whether I worked that out, but it was in relation to whether or not surgery was performed and a three-scale rating of "low probability of death; medium probability of death; and high probability of death", was available.

Underneath those two categorizations is an example which was prepared for me by the Team,



B.3

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to show me what sort of information would be available
when I did the complete analysis, or at least the
complete study.

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You can see that the information is
confined to the age of the patient, 17Y means 17 years
old. The two top lines consist of the diagnostic
categories available from the sources where they
obtained this information, and so they are limited
to two diagnoses. There may have been others
involved in any patient but they couldn't, there were
no more available to them in this system than two.

12

13

14

Then there was some statement about
whether or not surgery was performed. "Status shunt
cardiac" means the patient has previously had a shunt
operation.

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Q Was there any more description
of the operations given than would be contained in
this example? For instance, the kind of shunt that
might have been installed?

19

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A. No, but I think in general - no,
it would not say the name of the particular type of
shunt. I don't know whether in some examples there
may have been more, but that, I think that sample is
a very good representation.

23

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There were other comments that occurred



B.4

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2 in some, I am not sure how many, how much detail
3 there was in all cases, but that seemed to me to be
4 much the same as most of the extent of the information
5 that was provided.

6 So that in that particular sample,
7 given that information, I would be required to
8 categorize the anatomic disturbance and because
9 single or common ventricle lay in the severe category
10 of malformation, anatomic disturbance, I would have
11 labelled that III. The patient would appear to me
12 to have been admitted not to have surgery. Now that
13 is an assumption, but if the patient had come in for
14 a shunt there would be, I would have thought a
15 different comment, not "status", there would have
16 been cardiac shunt, or something like that.

17 Then I had to decide after determining
18 therefore, assuming therefore that the patient had a
19 medical condition, a medical admission, I would then
20 have to rate whether it was low, medium or high
21 prospect of death. In this case, and this is a
22 sample, it wasn't included actually in the study as
23 far as I remember. I labelled this I, meaning low,
24 because the patient was 17 years old and was post-
25 operative and came and had some diagnostic things
done.



B.5

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2 Now the problem with this is there
3 is not enough information there to be absolutely sure
4 which category it should be in. If that individual
5 had come in because of increasing symptoms, then the
6 prognosis might be somewhat different, but that is the
7 way in which the thing was laid. In fact you will
8 recall that I thought there were a lot of patients
9 but I couldn't remember the number, well the CBC
10 report says a sample of 807 admissions were categorized
11 in this way by me.

11 THE COMMISSIONER: Could I just
12 interrupt for a moment. This example is an example
13 of how, how you would label them, is that right?

14 THE WITNESS: Yes.

15 THE COMMISSIONER: The III is an
16 anatomic disturbance, that is outside the heart, is
17 it, the anatomic disturbance outside the heart?

18 THE WITNESS: No.

19 THE COMMISSIONER: That is a heart
20 disturbance?

21 THE WITNESS: That is the heart
22 disturbance.

23 THE COMMISSIONER: It is a severe
24 heart disturbance?

25 THE WITNESS: Yes.

Suggesting that the chart was
provide sufficient information.



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THE COMMISSIONER: And yet there is a low probability of death, is that it?

THE WITNESS: That is the problem with the categorization. You haven't got enough information there to make that second category as tight as you would like. It is limited information, it is not the chart, it is just those four or five lines, and that is why I think I said I was a little uncomfortable about this arrangement because there are clearly problems in the accuracy of that sort of thing. I mean, you don't even get a chance to look at the discharge report.

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BN/ak

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THE COMMISSIONER: No, I understand all that, but it is the results somehow that I am having trouble with. If it is a severe anatomic disturbance, would that not in itself make the probability of death more than low?

THE WITNESS: If the age of that patient had been younger, I would have said yes, but somebody who can live to 17 with a malformation may live a good deal more.

MR. ORTVED: Q. Just, Doctor, for my own edification, so that I understand this example that was given to you, you have gone down, as I understand it, to the third line of it. Just continuing on down, it says "Disease, Heart, Ischemic" and then "NOS". Can you interpret that for us?

A. No, I am not too sure what that means.

Q. Were there other examples, other instances where you were not able to fully interpret the entries?

A. Yes, there were. I assumed that the items on the last two lines referred to diagnostic investigations that were conducted during that time, and I believe that was probably so. But some of it, I do not know, for example, what "E" means



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and what "R" means.

Q. What do the words following
"R", what do you translate those as meaning?

A. Diagnostic ultrasound of
the heart is an echocardiogram was performed, I presume.

Q. Yes, and on the next line?

A. And cardiovascular and
hematopoietic, that would be radio nuclear scan,
I would think.

Now, you know, there is a certain
amount of guessing that went into that, but it is
the problem of trying to deal with a very large number
of cases which were required by the study statistically
and some attempt by one individual to provide the
information that they were seeking.

Q. And do I understand that this
copy of the example which has been transposed onto
what is now this exhibit is the only item remaining
in your possession of the material provided to you
by the Atlanta Study?

A. Yes, that was sent to me by
one of the team showing me what I would have to do
with that particular sample.

Q. All right.

A. He did not tell me what I had



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to grade it, but he told me what I would have to do.

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Q. Now, I mentioned on Thursday that all I had remaining in my cross-examination were one or two matters of housekeeping, and I will just deal with those.

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In relation to Exhibit 127, Dr. Rowe, that, you will recall, is your analysis of the 36 babies and eventually a classification of those 36 babies according to prediction of outcome, based on condition prior to death. Do you have that document?

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A. 127.

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Q. Yes. And you classified 34 of the infants or 34 of the deaths with which we're here considered under the categories inevitable death, high risk death and lower risk death.

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A. Yes.

Q. You did not categorize patients Floryn, Heyworth and Murphy because, as you explained to the Commissioner at the time, they were ---

THE COMMISSIONER: You said 34. I take it you counted that up?

MR. ORTVED: That is right.

THE COMMISSIONER: Well, we are in trouble.

MR. ORTVED: 33?



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3 THE COMMISSIONER: Well, there
4 should be 33, but if you counted the 34, I will
5 accept what you say.

6 MR. ORTVED: No, that is my mistake.
7 I think it should be 33.

8 THE COMMISSIONER: Well, I am
9 delighted to hear that.

10 MR. ORTVED: Q. Sorry. You told
11 the Commissioner that you did not categorize Floryn,
12 Heyworth and Murphy for the reasons that they were
13 not infants.

14 A. Yes.

15 Q. My only question to you is
16 this. Were you to categorize them under the categor-
17 ies of inevitable death, high risk death and lower
18 risk death, where would they fall?

19 A. They would fall in the
20 inevitable death category.

21 Q. Then, in the questioning
22 of you by Mr. Lamek -- maybe I could borrow Mr. Lamek's
23 copy of the transcript. You will recall that on
24 July 28th, Mr. Lamek asked you ---

25 MR. LAMEK: Page number?

MR. ORTVED: Q. 3275, I am sorry;
Volume 18, page 3275, Mr. Lamek asked you in light



1
2 of the Cook case whether there were other cases
3 which you might have cause to be considered as
4 possibly a result of digoxin intoxication. Do you
5 recall those questions?

6 A. Yes, I do.

7 MR. LAMEK: Most likely to have
8 been caused by.

9 MR. ORTVED: Q. Most likely. And you
10 gave you him the answer six, correct?

11 A. Yes, I did.

12 Q. And you listed them, being
13 Miller, Pacsai, Inwood, Hines, Estrella and Velasquez,
14 correct?

15 A. Yes, as being subject to
16 further assessment by experts, and I have forgotten
17 the words I used but ---

18 Q. All right. You then will
19 recall that you modified that list on Tuesday last
20 to include the Lombardo child; is that correct?

21 A. Yes, I did.

22 Q. My question to you simply
23 is in relation to Velasquez, is there any clarification
24 you wish to make in relation to that particular child?

25 A. Well, Velasquez is the baby
that we felt had a death that was related to naloxone,



1
2 and that was the feature I had in my mind about its
3 poisoning and the question of experts involved. I
4 may have confused matters a little there. Lombardo
5 was the one that I really felt was the tetralogy mal-
6 formation.that was the amazing case. I am quite prepared to
7 leave Velasquez in that list, but the emphasis that
8 I have there is relation to naloxone rather than
9 to digitalis.

10 Q. Then lastly, in terms of the
11 statement of prima facie fact, the only items in
12 relation to that document about which we have made
13 submissions regarding corrections and which have not
14 been canvassed to date are, I believe as follows:
15 on page number 19, paragraph 26, the paragraph as
16 contained in the statement of prima facie fact
17 provides this sentence:
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"The cardiovascular division worked closely with the cardiology division of the paediatrics department and dealt with the correction of the most complex forms of congenital heart disease."

And I believe you have some comment in terms of the word "correction"?

A. Yes. There is considerable feeling amongst both paediatric cardiologists and surgeons that correction of cardiac anomalies is a situation that seldom can really be achieved, but it is more appropriate to talk about repair of a cardiac malformation rather than correction. Of course, it also in this particular sense means that there are other ways of treating patients with heart disease other than by repair. You can use palliative or temporizing measures of surgery.

Q. All right. So, if that sentence read, instead of 'corrections', repair and palliation would be more appropriate?

A. That would be more accurate of the feelings I think at the moment.

Q. Going to page No. 28, paragraph 42 of the Statement of Prima Facie Facts, it is provided there that each year there are approximately 2,000 admissions to the cardiology wards. I believe



D.2

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that is simply an error in terms of the mathematics,
is it not?

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A. Yes, that really means to the
Hospital as a whole.

5

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Q. Cardiac patients to the Hospital?

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A. Yes, and only half of that number
would be to the cardiac ward.

8

9

Q. All right. Page 31, paragraph 48
provides, in the Statement of Prima Facie Facts as it
presently exists that after September ---

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THE COMMISSIONER: I'm a little behind
you. What's the next paragraph?

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MR. ORTVED: Page 31, paragraph 48, and
it provides presently, Dr. Rowe, that:

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"After September, 1980, a clinical
pharmacologist was assigned to these
Wards for the purposes of overseeing
the appropriateness of drug orders."

18

19

Was it a pharmacologist or in fact a
pharmacist?

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21

A. A pharmacist, a clinical
pharmacist.

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Q. Nextly on page 47, paragraph 73,
as presently drafted that document reads:

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"Digoxin is a drug regularly used for

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"the treatment of cardiac ailments both in adults and children. Prior to March, 1981, digoxin was stored in the Hospital adjacent to other commonly used drugs on open shelves in unlocked ward medication rooms, including those of Wards 4A/B."

In fact, instead of prior to March, should that read prior to March 21?

A. Yes.

Q. Right. March 21 is the date that digoxin was made a controlled drug?

A. Can I just check the day that was?

Q. Yes.

A. Is that a Saturday?

Q. That's the Saturday that Baby Miller died.

A. I'm not exactly sure whether the medications were actually implemented in being withdrawn on the evening of the 21st. The move to do that was made late at night on the 21st and it may not have been accomplished in all areas until the early hours of the 22nd.

Q. All right.

A. But it was started on the 21st.



D.4

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Q It should read 21st or 22nd then?

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A Yes.

4

Q And lastly on page 85, paragraph
93, as presently drafted that paragraph reads:

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"The patients who were the subject
matter of this review were principally
those who were dying at night on
Ward 4A while under the care of one
nursing team, namely, the team headed
by Phyllis Trayner. This factor was
not addressed by the Hospital committee
conducting the mortality review in
January, 1981."

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My question to you simply is whether
or not it was within the knowledge of the committee
or the group conducting the review in January or,
for that matter, earlier in September that there was
a problem commonly principal to one team in the
Hospital?

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A No. Certainly the cardiologists
did not know that in January of 1981.

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MR. ORTVED: Thank you, those are all
my questions, Mr. Commissioner.

22

23

THE COMMISSIONER: Yes, thank you,
Mr. Ortved.

24

Yes, Mr. Strathy.

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CROSS-EXAMINATION BY MR. STRATHY:

Q Doctor, in the course of your evidence, which has now spanned some four weeks, you have meticulously reviewed the history of the patients with which we are concerned in these proceedings and you have given us the benefit of your opinion as to the condition of the children, their treatment and the reasons why they died.

What I would like to be clear about at the outset, and I am going to ask you if you would list them for me, the things which you considered in coming to your opinions, that is, the data that you looked at which enables you to give those opinions and the investigations that you have made.

I would like to go through with you some of the things I understand you considered and perhaps you can simply confirm those for me.

Firstly and obviously you have reviewed the charts or, more properly, the records of the patients while they were at the Hospital. Am I right in that?

A. You mean I personally reviewed all the records?

Q Well, in the course of giving us your opinion you have made reference to the charts



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for example that we have in front of you which - I'm
sorry, the records that you have in front of you.

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A. Yes.

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Q. And I understand that those are
one of the things that you have had reference to in
each particular case?

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A. Yes.

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THE COMMISSIONER: The question though
is his opinion today as opposed to his opinion at
some other time.

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MR. STRATHY: Yes, that is so.

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THE WITNESS: And in that case I have
had those records available.

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MR. STRATHY: Q. So, for each particular
patient you have reviewed in detail that patient's
record?

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A. Yes, I have.

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Q. And would you agree with me,
Dr. Rowe, that it is important to you in giving your
opinion to look at the whole record, in other words,
there are many things in the record which you, to
come to an opinion, must look at?

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A. There are.

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Q. And would you agree with me also
that it would be misleading and inappropriate to simply



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refer to one part of the record, for example, the progress notes in coming to an opinion?

A. Yes.

Q. There are many for example tests in that record, blood tests, tests for the presence of chemicals, catheterizations, electrocardiograms and so forth, that you must look at and interpret to enable you to come to your opinion?

A. Yes.

Q. And would you also agree that it has taken you years of training and experience to do just that, that is, to interpret these tests and to understand them?

A. Yes, it has.

Q. Would it be fair to caution a layreader in terms of analyzing the charts and records without knowing what those tests mean without being able to interpret those tests?

A. Yes.

Q. For example, I certainly don't pretend to be able to understand what an electrocardiogram means yet, that is something that you would look at in coming to your opinion in a particular case?

A. That is true.

Q. Now, I would just like to itemize



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it, I have already referred to it, but I take it then another thing that you have looked at which we find in the records are these various tests that have been administered to the patients in the course of their Hospital stay?

A. Yes.

Q. And, again, those are important things to look at for the purposes of giving us your opinion?

A. Yes.

Q. Now, the next thing that I understand that you have referred to in at least some patients are your own personal observations of the patient in a clinical setting. You have actually seen some of the patients that we have talked about?

A. Yes, a few.

Q. Any indication, can you help us with how many you've seen, or I suppose it would appear in their records?

A. Well, it would not necessarily appear in all records. I may have seen patients when I was on duty at night and may not even have made a note in the record of having seen that patient. But the ones in which I was on duty for a period of time as the Ward Chief would bear some record from that.



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Q All right. And in those cases may we take it that your opinion that you have given us in these proceedings is based at least in part on your own personal observations?

A Yes, indeed.

Q And would you agree with me that there is really no substitute in analyzing a particular patient, there is no substitute for the eyes, the ears and the hands of the treating physician?

A I would agree with that.

Q And is that why in some cases you have suggested to us for example that you would defer or suggest we elicit the opinion of the treating physician who was actually on the ward examining the patient at the time?

A Yes.

Q And clearly that is a very important factor in coming to an opinion in any particular case?

A It is.

Q Going on to the next category which I have as No. 4.

THE COMMISSIONER: I am lost somewhere.

MR. STRATHY: All right. Well, I combined two in one. I started with the record and



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then I suggested that perhaps we could put in a separate category of the actual tests that had been administered to the patient which are in the record but which should perhaps be considered separately.

THE COMMISSIONER: All right.

MR. STRATHY: And thirdly, the doctor's own personal observations in some cases.

Q And then fourthly, Doctor, as I understood it, at least in the case of many of these patients, you have actually spoken to the physicians who were treating the patients prior to their death. Is that right?

A. Yes, I have.

Q Now, I understand that at least some of these discussions, or speaking to the physicians would have occurred at the regular daily conferences that you had on the ward that you have told us about?

A. Yes.

Q And you applied what you heard at those conferences in coming to an opinion on particular cases?

A. Yes, so far as I can remember.

Q Now, do I further understand though that you have actually approached some of these treating physicians after the fact and discussed particular cases with them?



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A. Yes, I have.

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Q. Are you able to tell us which cases or have you discussed all of them?

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A. I think we have discussed almost all of them.

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Q. And has that been a recent discussion that has occurred?

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A. No, I think it extends back to 1981.

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A. Yes, often many times.

Q. So, you have obtained the benefits of their views on the reasons why these particular patients met their deaths?

A. Yes.

Q. And I take it you would agree with me that having the benefit of their views has been very important to you in coming to your conclusions?

A. Yes.

Q. Now, one of the reviews that has



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been mentioned, and I believe it is Exhibit No. 48 in these proceedings, is Dr. Bain's review, which I believe was prepared at the request of Mr. Scott. Do you recall that document, I think it is a 30 or 40 page review prepared by Dr. Bain?

A. At the request of Mr. Snedden, I believe.

Q. Mr. Snedden, all right, and I think Mr. Snedden had it prepared at the request of counsel. It is Exhibit 48, Mr. Commissioner.



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THE COMMISSIONER: Yes, I know it well.

It was June 24th, 1982.

MR. STRATHY: June 24th, 1982.

THE COMMISSIONER: I know Mr. Scott was not retained until some time later.

MR. STRATHY: Q. It indicates then "Request of Counsel". I assumed Mr. Scott was the counsel being referred to. In any event do you know the document I am referring to, Doctor?

A. Yes, I do.

THE COMMISSIONER: Mr. Snedden, is he a solicitor?

MR. STRATHY: He is the Administrator I believe of the hospital, an official in the administration.

THE COMMISSIONER: This report was prepared for Mr. Douglas Snedden at the request of and for the assistance of counsel. It sounds like a pro forma initial paragraph in all reports.

MR. STRATHY: Q. In any event, Doctor, you have told me you are familiar with the report prepared by Dr. Bain, and I gather you have read that review?

A. Yes, I have read it.



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Q. And I think in the review

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itself Dr. Bain indicated that he discussed many of

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the patients with you personally?

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A. Yes, he did.

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Q. So I take it that in giving

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us your opinion today we can at least take it that

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you have had input from Dr. Bain and you have had the

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benefit of reading his review?

A. Yes, I have.

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Q. Now I don't know, the next item

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which I have is No. 6, Dr. Rowe, it is a review or

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reviews apparently prepared by Dr. Hastreiter. Now

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I don't know that it has been marked as an exhibit,

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but it is a large volume. Do you have a copy, Mr.

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Lamek, with you of that?

MR. LAMEK: Not with me I am afraid.

16

Q. Let me simply ask you, it has

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been provided to the various counsel, Doctor. Have

18

you seen the reviews prepared by Dr. Hastreiter?

19

A. Yes, I have.

20

Q. And do you know the one I am

21

talking about, it is quite a bulky volume, several

22

hundred pages I believe.

A. It is a bound one, yes.

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Q. Yes.

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A. Yes.

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Q. Have you had an opportunity to

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read that?

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A. Yes, I have.

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Q. And do you know when you had

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an opportunity to read it?

8

A. Just recently.

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Q. Is it something you have taken

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into consideration in giving us your views in these
proceedings?

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A. Yes.

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Q. I take it it is something you

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feel, at least with the children with respect to which
you have concern, you would be interested in hearing
what Dr. Hastreiter says about those children?

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A. Yes.

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Q. He is one of the people you

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are talking about when you suggest some of the cases
should be subjected to further scrutiny by further
experts?

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A. Yes.

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Q. Now again something that is

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included in the medical records which I want to

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specifically outline, as No. 7, and that is the

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results of the autopsies of these particular children.

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I take it for granted that you have reviewed the autopsy results?

A. Yes, I have.

Q. Would you agree with me that the autopsy results may be a critically important thing to look at in trying to decide why a particular child died?

A. Yes, I do.

Q. That there may well be factors revealed on autopsy which will perhaps, would show perhaps that the disease was much more severe than originally suspected?

A. Yes.

Q. There may even be factors or evidence disclosed on autopsy which suggests that other things contributed to the child's death which were never even suspected?

A. Yes.

Q. And in fact autopsy results may lead a physician to completely re-assess his initial decision of why a child died?

A. Yes, that may happen.

Q. Would you agree with me, Doctor, that in those cases where we do not have autopsy results, our views and your ability to give an opinion in that



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particular case may be significantly hampered?

A. Yes, I think that is a fair statement.

Q. Where there is no autopsy?

A. It doesn't necessarily imply that will be the case, but it certainly may be.

Q. Let me put it to you this way, in those cases where you have a question in your mind about the death, are you concerned about the absence of an autopsy?

A. Well it would certainly be very helpful if you had the autopsy.

Q. Let me pick one example for you, and that is the case of Manojlovich. You may not remember it, and I am just going to summarize one factor for you. That case was one where vomitus was found in the child's mouth after the arrest. I think you indicated there was a suspicion that that child had aspirated the vomitus, that is it had gone into the lung?

A. Yes.

Q. But there was no autopsy performed?

A. No.

Q. Just to take that very specific



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case, would you agree with me that an autopsy might have been very helpful in satisfying yourself as to whether or not that was the cause of death?

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A. Yes.

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Q. And if it was, if vomitus was aspirated that might well have been the cause of death in that case?

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A. It certainly would have been revealed if it had been there.

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Q. Now just on the subject of autopsy, and just a brief diversion while we are discussing it. Do I understand that autopsy in the Hospital for Sick Children with children dying on the cardiac wards in 1980 and 1981, was that done as a matter of routine as long as the parents consented?

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A. We requested autopsy routinely.

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Q. Was it invariably done. In other words, I had an impression, Doctor, and it may be entirely erroneous, that it was only done where the physician after death requested an autopsy, am I wrong in that?

21

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A. That the autopsy was only done after the physician had requested it?

23

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Q. Requested it, yes.

A. Yes, I don't see there is any



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7 2 other way.

3 Q. My point is, were there some
4 cases, for example, when the physician might not
5 request it, when he was so satisfied with the reasons
6 for death that he simply did not think an autopsy
7 necessary?

8 A. I can't recall a situation like
9 that. It would not be our general principle to take
10 that position. We would always ask, but there might
11 have been occasions when the parents specifically said
12 they did not want to have an autopsy, almost before
13 the time, as it were.

14 Q. And in some cases I gather
15 rather than a complete autopsy the parents would simply
16 give a limited consent to a partial autopsy of the
17 heart and lungs, is that so?

18 A. Yes it is, as you can imagine
19 a very difficult decision for many parents to make,
20 and recognizing that there may be a need, or an
21 importance for the post mortem, they may only be
22 prepared to go a certain distance and that is usually
23 what we ask for then.

24 Q. Dealing with the next thing
25 that I understand you have considered in giving us
your opinion, Item No. 8, I have is the digoxin levels



1
2 in the particular child both ante and post mortem.

3 Am I right on that, that that is something you have
4 considered in giving us your opinion?

5 A. Yes.

6 Q. And next Doctor, Item No. 9,
7 and I understand from something that Mr. Ortved said
8 to you this morning, that you have also considered the
9 Atlanta Report, or at least read the Atlanta Report?

10 A. Yes, I have read it.

11 Q. Have you read any of the views
12 expressed by Dr. Nada~~s~~ who as I understand it was
13 a consultant retained by the authors of the Atlanta
14 Report.

15 A. I have read the tables and some
16 of the script, the interpretation of those tables.

17 Q. That is the tables in the
18 report itself?

19 A. Yes.

20 Q. And Doctor, is there anything
21 else that I have not mentioned that you have considered
22 in the course of arriving at your opinions that you
23 have testified to in these proceedings?

24 A. I think the only other thing
25 would be the surgical input into this.

Q. I will add that as No. 10 then.



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MR. PERCIVAL: That is what, Mr.
Strathy?

MR. STRATHY: I have it as No. 10, the
surgical input.

Q. By that do you mean the views
of the surgeons who actually operated on the children?

A. Yes.

Q. Who had actually seen the
physical structure of the child's heart in the course
of surgery?

A. Yes.

Q. And do you consider that some-
thing important?

A. Yes, I do.

Q. Anything else, or have we
covered everything?

A. No, I can't think of anything
else at the moment.

Q. If you do think of anything
else will you let us know?

A. I certainly will.

Q. Doctor, it is obvious that
you have made a thorough review, but can you tell us
is there anything you think you should have analysed,
that for whatever reason you have been unable to



1
2 analyse. Is there anything that you should have
3 looked at, or would have liked to have looked at
4 that you haven't been able to look at in giving us
5 your opinion?

6 A. No, I don't think so.

7 Q. Thank you. Now, in the course
8 of Mr. Scott's examination, Dr. Rowe, he made
9 reference to the period from July of 1980 to March
10 of 1981 as an epidemic, or a so-called epidemic period.
11 Now I know that may not be Mr. Scott's own word, and
12 perhaps it is not your expression. Because as I
13 understood it, Doctor, as you were reviewing the deaths
14 on a regular basis during that period; and let us take
15 the period from the end of June 1980 up until March
16 12th, 1981, March 12th being the Pacsai death.

17 MR. ROLAND: Mr. Chairman, I rise
18 because I have got now photographic miniatures of
19 the chart that my friend is referring to and perhaps
20 I can pass them out to assist everybody.

21 MR. PERCIVAL: Mr. Roland, what exhibit
22 is that?

23 THE COMMISSIONER: Exhibit 125.

24 MR. STRATHY: Q. Doctor, I am not
25 going to refer you to this exhibit any further, but
I just wanted to indicate that period to you and I



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2 have asked you to consider that period from the end
3 of June 1980 up until March 12th of 1981, March
4 12th the date of the death of baby Pacsai. It was
5 certainly my understanding from your evidence that
6 as you were reviewing these deaths, both on a daily
7 basis and at the meetings which you held with your
8 colleagues in September and January, it was certainly
9 not your perception that there was an epidemic going
10 on in Wards 4A and 4B in the Hospital, am I right in
that?

11 A. I said I think there was an
12 apparent increase and I think that was challenged
13 as to whether it was a real increase.

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MR. PERCIVAL: Mr. Commissioner, I am
having difficulty. Would the witness please speak up?

THE COMMISSIONER: Yes.

THE WITNESS: I am sorry. I think
that I've, in discussing that period,
I first commented on the issue of the
apparent increase because of the perception we have
of a more global cardiac mortality, but by the time
the fall had arrived, it was obvious that there were
more numbers on the ward.

MR. STRATHY: Let me put it to you
this way, that if you had any perception it was a
perception that there were sicker and younger babies
on that ward than you had previously encountered?

THE WITNESS: Yes, that was the
feeling.

Q. So that if there was an
epidemic, it was an epidemic in that sense, an
epidemic of sicker and younger babies?

A. Yes, I think that was how we
described it.

Q. And that is what you perceived
'as presenting itself at your hospital in that ward
in that period?

A. Yes, we did.



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Q. And again, in light of hindsight and having had the opportunity of reviewing these deaths in considerable detail and asking you again to look at that period with the benefit of hindsight, is that still your view, that is, if there was any epidemic, it was simply an epidemic of very sick, young babies?

A. That is what I believe it would be.

Q. And that is your opinion as of today?

A. Yes.

Q. And I suggest to you that the use of the term 'epidemic' by Mr. Scott, and I know he did not intend this, but I suggest to you it may well be an unfortunate term because it may create unnecessary concern in the minds of the public and in the minds of parents of children who were patients in those wards during that period?

MR. LAMEK: Mr. Commissioner, is that not entirely argumentative, a matter of definition of a word?

THE COMMISSIONER: Well, it is. There is one thing, though, that I would like to clear up. There is quite a difference between sick and young



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2 babies and sicker and younger babies. Did you have
3 the impression that you were having sicker and younger
4 babies at that time or that the epidemic was one
5 among sick and young babies? Now, that may be a
6 subtle distinction you do not want to make.

7 THE WITNESS: I do not know that I
8 can.

9 THE COMMISSIONER: But I am not too
10 sure I know -- now a leading question and think about
11 it before you answer it. Did you think that the
12 babies that you were having at that time were sicker
13 and younger than in other periods?

14 THE WITNESS: Yes, we thought they
15 were sicker and I believe that the impression was they
16 were younger too. I am not sure when we decided
17 that point. We knew they were sicker or sick.

18 THE COMMISSIONER: Well, they are
19 sicker, of course, because they died. There is no
20 question about that. But did you have the impression
21 that you were then getting sicker and younger babies
22 at that period than at any other time?

23 THE WITNESS: That was our impression,
24 yes. I am not sure at what point in July, August or
25 September we came to that view, but it was certainly
by the end of the summer.



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MR. STRATHY: Mr. Commissioner, I know this is not the time for argument, but with respect, it seems to me that they may also have died because they were sicker.

THE COMMISSIONER: There is no question that they did die because they were sick. The manner of the sickness is, of course, what this inquiry is all about.

MR. STRATHY: Quite.

Q. Well, I would like to put my question to Dr. Rowe because I know that the word 'epidemic' was not his word and I simply suggest to him that 'epidemic' may create an impression that there was some external force at work in those wards during that period, and I suggest to him that the use of that word in his view may be inappropriate?

A. Well, I am not quite sure I know how to answer that because it certainly seemed to be a concentration of that sort of patient, and whether you call it a cluster in preference to epidemic, I would prefer the term a cluster, but that is again maybe semantics.

Q. But again, the cluster being a cluster of sicker and younger babies?

A. Yes.



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Q. May I simply ask you one question because I am going to ask you about this later. In your experience as a cardiologist, would you agree with me that clusters do occur?

A. Yes.

Q. Now, Mr. Ortved referred you this morning, Dr. Rowe, to the eight deaths which you considered may have been related to digoxin toxicity, and I want to deal with those in a summary fashion to begin with.

First of all, you said that Justin Cook, in your view the death of Justin Cook was unquestionably one which was likely to have been caused by digoxin intoxication. Do you recall that evidence?

THE COMMISSIONER: I do not think those were quite the words.

THE WITNESS: Overdose, I think it was overdose.

MR. STRATHY: Well, I have got the words here, sir.

THE COMMISSIONER: Unquestionably one that I think that had happened. Yes, perhaps you are right, unquestionably is one that I think that had happened. "Unquestionably" and "I think" do not go



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together as well as they might.

MR. STRATHY: No, and he was asked by Mr. Lamek which do you regard as most likely to have been caused by digoxin intoxication.

MR. LAMEK: With respect, would Mr. Strathy look at page 3274, Mr. Commissioner, at the bottom:

"Q. Did you form an opinion of the cause of Justin Cook's death?

A. Yes.

Q. And that was what?

A. That he had had an overdose of digoxin."

There is not a question of likely there.

MR. STRATHY: All right. Well, I think I understand the doctor's evidence and I was not proposing to make a great deal out of the terminology, but let me just ask you, Doctor, you have already told us that in your view Justin Cook was a very sick baby?

A. Yes.

Q. And may I take it that your view with respect to digoxin intoxication, having played a role in his death, is based on the digoxin levels which were found in his blood both ante-mortem and post mortem; is that why you have concerns about it?



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A. Entirely.

Q. In fairness, when we talk of the antemortem level in Justin Cook, and I have the figure of 72 nanograms per millilitre, that was the sample taken after the arrest had begun; is that your recollection?

A. I think it was.

Q. So, in a sense, to call it an antemortem sample may be perhaps a matter of semantics?

A. Yes.

Q. Now, the other seven, which again, as I read your evidence, you said it is possible that the other 7 were caused by digoxin intoxication, and as you have pointed out this morning, you feel that that whole question should be subject to further debate by people who are experts in their field?

A. Yes.

Q. You have mentioned other cardiologists, for example?

A. Yes.

Q. Would you suggest also that other pharmacologists and pathologists be involved in that debate?

A. I think they would be key.

Q. So, pharmacologists,



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pathologists, cardiologists. Anybody else that you feel should be involved in that debate?

A. Well, those are the particular issues that I think should be addressed there. To what extent in the matter of the digoxin an epidemiologist is involved, I cannot say, but I think that the key people are the pharmacologists.

Q. Who can tell us just what those digoxin levels mean?

A. Yes.

Q. Or hopefully assist us as to what they mean?

A. Hopefully, explain in some way.

MR. MARSHALL: I am sorry, Mr. Commissioner, I am sorry, Dr. Rowe, I am still having difficulty hearing as well.

THE WITNESS: I am sorry, I should sit a little closer to the mike. Is that better for you?

MR. MARSHALL: It is awkward to talk with the thing, but that is better.

THE WITNESS: Is that better? I will try to stay closer.

MR. MARSHALL: Thank you very much.

MR. STRATHY: And do I understand you



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to be saying that because what troubles you in respect of those deaths that you have mentioned, except for Velasquez, is the presence, and I am going to put it in quotes, digoxin in blood or tissue of those children?

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A. Yes.

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Q. In, I take it, amounts which give you concern?

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A. Yes, or amounts which are subject to debate. I do not know whether they really are always of concern to me because I do not know enough about it.

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Q. But the ones that you have singled out for us are the ones where you feel because of the digoxin there should be further discussion?

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A. Yes.

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Q. And Velasquez, you have told us, your concern is not related to digoxin?

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A. No, really that is more to the other drug, naloxone.

Q. Would you agree with me that there is nothing in the case of Velasquez which gives you a specific concern relating to digoxin?

A. No.

Q. You would agree with me?



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A. No, I think that, as I recall, I said that the mode of death is compatible with digoxin, but I did not think there was major support. In fact, I thought that there were some reasons perhaps that might argue a little against that.

Q. Well, I will come to that in a moment. Then I take it you agree with me that there is no evidence in the case of Velasquez to suggest that digoxin played a role in his death?

A. No.

Q. Dealing with the other deaths, that is, Lombardo, Estrella, Hines, Pacsai, Inwood and Miller, it was my understanding that in the case of all six of those deaths -- I am sorry, five of those deaths, the exception being Pacsai, you felt that there were medical reasons for those deaths but the digoxin levels gave you trouble?

A. Yes.

Q. And that in Pacsai you were troubled by the death at the time it occurred because you did not see a complete explanation for it, and also the digoxin levels in Pacsai's case gave you concern?

A. Yes.

Q. Those levels being a level of



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greater than 10 ante mortem, that is 10 nanograms per millilitre in serum ante mortem and 24 and 26 nanograms per millilitre post mortem in the case of Pacsai?

A. Yes.

Q. May I suggest to you, then, that leaving aside Velasquez but including Cook, the common thread of your concern is this question of digoxin?

A. Yes, that is so.

Q. Now, Doctor, during the course of his examination by you, Mr. Scott read you portions of the evidence given at an inquest into the death of Gary Murphy. Do you recall him reading that to you?

A. Yes, he did.

Q. And, as I understand it, Gary Murphy was a patient on Wards 4A and 4B at the Hospital for Sick Children and he died on the 23rd of April, 1983. Do you recall that?

A. I recall the patient's name, yes.

Q. Do you recall that he was, in fact, a patient in the ward?

A. Yes.

Q. Were you familiar with him as a patient?



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A. No, not directly.

Q. Do you know what he was being treated for?

A. The name of the malformation?

Q. Yes.

A. I think he had a complex asplenia malformation with a very complicated cardiac defect.

Q. Now, we know that an inquest was held into his death, Doctor. Do you know why an inquest was held?

A. I think it was because he was found to have a high level of digoxin in the blood at post -- which term am I using here?

Q. Post is fine.

A. Post is fine, post mortem.

Q. So it was because he was found to have a high level of digoxin in post mortem blood?

A. I believe that is the reason.

Q. My information, Doctor, based on the transcripts of Murphy, is that blood taken from the heart was found to contain 32.2 nanograms per ml ; blood taken from the right ventricle was found to contain 29 nanograms per ml; blood taken from the



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Rowe
cr.ex. (Strathy)

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sagittal sinus was found to contain 18.9 nanograms of
blood per ml; and that tissue samples taken from
Gary Murphy's heart were found to contain 356
nanograms of digoxin per gram.

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2 Now, I have compared those against
3 the postmortem samples taken from Baby Pacsai and
4 certainly the tissue is higher in the case of Murphy
5 and certainly in the case of the heart blood and
6 the blood from the right ventricle it is higher in
7 the case of Baby Murphy.

8 All I want to suggest to you by this,
9 Doctor, is that if we are making up a list of cases
10 to submit for further discussion and review, relevant
11 by appropriate experts, that perhaps Baby Murphy is
12 one that should be included in that list. Would you
13 go along with me that far?

14 A. Yes, I think that would be
15 true.

16 Q. I'm not suggesting that there
17 is anything sinister in Baby Murphy's death whatsoever.

18 A. No.

19 Q. All I'm suggesting is that
20 if we want a full picture and as much evidence before
21 us as we can that perhaps Baby Murphy's death can
22 give us some help.

23 A. Yes.

24 Q. I'm going to ask,
25 Mr. Commissioner, and simply put my request on the
record at this point that the charts of that patient



1
2 be obtained and produced and be made a part of the
3 record in these proceedings.

4 THE COMMISSIONER: What do you say,
5 Mr. ~~Roland~~ ^{Lamek}?

6 MR. LAMEK: Mr. Commissioner, I
7 have already set that enquiry in train and I'm on
8 the track of it.

9 THE COMMISSIONER: Yes, all right.

10 MR. STRATHY: Q. Thank you. Now,
11 Doctor, I would like to ask you some questions about
12 some of the babies whose histories that you reviewed.
13 You will be glad to hear that I don't propose to ask
14 you questions about all of them and I hope I will be
15 substantially briefer than my friend Mr. Lamek.

16 Before I begin that enquiry I would
17 like to ask you one or two questions about the patient
18 population with which you are dealing at the
19 Hospital.

20 I am sure that many of the counsel
21 here who have sat through these proceedings for the
22 last four weeks have wondered, and perhaps the
23 Commissioner has too, after looking at these very
24 bizarre congenital malformations whether there is any
25 such thing as a child with a normal heart. Simply
to put things in perspective, it is my understanding,



1
2 and perhaps you can help us, that congenital heart
3 disease is a relatively rare occurrence amongst the
4 general population. The figure I have heard is
5 around 1 per cent of births. Is that fair?

6 A. That is a well recognized
7 figure.

8 Q. All right. That 1 per cent
9 incidentally would cover really everything from the
10 mild congenital heart disease up to the fairly very
11 severe type of heart disease.

12 A. Yes, it would.

13 Q. And would you agree with me
14 that at least some of the conditions that we have
15 looked at, for example, tetralogy of Fallot and
16 patent ductus arteriosus, while they may be fairly
17 common in your clinical experience may be fairly
18 rare relatively speaking in the population at large.

19 A. Yes, tetralogy of Fallot is
20 about 12 per cent of all congenital heart disease.
21 On the other hand, something like a ventricular
22 septal defect is about 30 per cent of all congenital
23 heart disease. So, there are differences in the
24 numbers that present of any one malformation.

25 Q. But to take tetralogy of
Fallot for a moment, that is 12 per cent of the 1 per
cent?



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A. Yes.

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Q. So, while you may see it a

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fair amount because you deal with congenital heart

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disease everyday, in terms of its statistical

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occurrence it is fairly rare?

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A. Yes, it's uncommon.

8

Q. And then we have looked at

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some diseases, for example, endocardial fibroelastosis
which is very rare.

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A. Yes, that is true.

11

Q. Both in terms of its

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occurrence in the public generally and in terms of
the occurrence in the clinic.

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A. Yes.

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Q. And may I suggest to you

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that the patient population with which you are

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dealing is one within which death is simply a fact

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that is encountered on a regular basis.

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A. That is so.

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Q. Some of these babies are

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quite literally born to die.

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A. Yes.

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Q. And I would like to read to

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you an extract.

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THE COMMISSIONER: Exhibit 142.

25



---EXHIBIT NO. 142: Extract entitled "Mortality
in Congenital Heart Disease".

MR. STRATHY: Q. I just have had
the extract handed around. It comes, Dr. Rowe, from
the text of which you are one of the editors. You
can perhaps - I don't have the text with me today,
perhaps you can give us the title of the text. This
is your green volume that weighs about 2 pounds and
runs to some thousand odd pages.

A. It's title is "Heart Disease
in Infancy and Childhood" I believe.

Q. "Heart Disease in Infancy and
Childhood".

A. Yes.

Q. And I believe it is in its
third edition, is that right?

A. That's correct.

Q. This comes from the third
edition at pages 7 and 8. You are one of the editors
of that?

A. Yes, I am.

Q. Along with Dr. Keith, I
believe?

A. Yes.

Q. And Dr. Vlad?



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A. Yes.

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Q. And that text, as I understand

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it, was prepared essentially at the Hospital for

5

Sick Children?

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A. Yes, most of the material

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is from there.

8

Q. Many of the contributions

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are from doctors at the Hospital for Sick Children?

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A. Yes.

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Q. And am I right that the

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text itself is used around the world in hospitals

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and universities?

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A. I think it is.

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Q. And just to refer you at

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the bottom of page 7 where it says "Mortality in

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"Congenital Heart Disease", it says:

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"If all the children born with

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congenital heart disease remained

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alive, a very large population of

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children with cardiac anomalies would

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soon accumulate. However, it is

23

widely recognized that many die in the

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first few weeks of life and that a

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further number succumb before the

end of the first year. The incidents ^{ce}~~ts~~



1
2 "of death in different age groups in
3 congenital heart disease in The
4 Hospital for Sick Children population
5 is shown in Table 1-5."

6 And then over the page is Table 1-5
7 which, as I understand it, indicates that of the
8 patients you treated at the Hospital with congenital
9 heart disease during that 20-year period, 1950 to
10 1970, of the 2,870 who died 34 per cent of those,
11 that is 980 cases died in the first month of life.

12 A. That is so.

13 Q. And then in the period from
14 one month of life to one year of life 36 per cent,
15 so, approximately an equal number died.

16 A. Yes.

17 Q. Is that right?

18 A. That is right.

19 Q. And then another third
20 approximately died after one year of life?

21 A. Yes.

22 Q. And just looking at the
23 second paragraph in the left hand column on page 8
24 it says:

25 "The first month of life is a particu-
larly lethal time for the child with

No! Deaths of young cardiology patients
(not deaths in cardiology wards)
are something that doctors live with
on a regular basis.



"malformations of the heart. Approximately the same number die in the first four weeks as die in the next 48 weeks. Twice as many die in the first month as die after one year of age from this cause."

I take it you would clearly agree that the first month is a particularly lethal time for a child with malformations of the heart?

A. Yes.

Q. And that is your clinical experience?

A. It is.

Q. So, would you perhaps counsel us (a) to put this all in perspective and (b) to keep in mind the deaths in pediatric cardiology wards are something that the doctors live with on a regular basis?

A. Yes.

Q. And again, Doctor, just before I turn to the patients that I would like to discuss with you.

MR. PERCIVAL: Is that an exhibit now, Mr. Commissioner?

MR. STRATHY: Yes.



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THE COMMISSIONER: I think we gave that Exhibit No. 142.

MR. OLAH: Excuse me, Mr. Commissioner, some of us did not receive copies of that exhibit.

MR. STRATHY: I'm sorry.

MR. OLAH: Perhaps some time over the recess it can be duplicated.

THE COMMISSIONER: Yes, all right, thank you. There may be enough but we will see.

MR. STRATHY: Q. Doctor, just before turning to the patients that I want to review with you, you have, in the course of your evidence, used the expression 'at risk' to describe a particular child who, as I understood it, was at risk of having a deterioration in his or her condition and dying and I have made a list of the factors that you have referred to and I want to briefly go through them to make sure that I have them all.

As I understand it, these are factors which help to tell you whether the child is at risk. Firstly, I have the anatomical condition of the child and its severity. I take it that is obviously a primary factor in your view?

A. Yes. It may be the most important thing.



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Q. Then I have the extracardiac malformation or complication. I have called it complication. You have referred to extracardiac malformations on Exhibit 127 but I've gone beyond that and suggested that there may be other complicating conditions; for example pneumonia or some other respiratory problem which would be important to consider.

A. Yes.

Q. And by extracardiac malformation, you have referred to things for example like Down's Syndrome, cleft palate and so forth.

A. Yes, I have.

Q. Would it be fair to lump into one group, which I have made the second group, this extracardiac malformation or complication?

A. That's one way of doing it.

Q. In any event, either one of those would increase the risk?

A. Yes.

Q. Then you have said the age of the child.

A. May increase the risk.

Q. May increase the risk.

Depending obviously on what it is and how severe it is.



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A. That's right.

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Q. Then you have said the age

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of the child, the risk is greater the younger the
5 child.

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A. Yes.

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Q. Now, fourth, there is one

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that you did not mention specifically, and I wanted
to ask you whether prematurity in and of itself

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increases risk. You have talked about low birth

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weight but can we say a baby who is premature is at
11 greater risk?

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A. Yes, definitely.

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Q. Could you tell us why that

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is?

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A. Because the baby who is

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premature is at risk ordinarily in terms of life
expectancy, especially in the very early stages after

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delivery, but if you have on top of that a malformation

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of the heart that's in the severe range and not just

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a trivial malformation, then the factor is added to it.

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Q. Is the reason that a premature

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child is at greater risk that the child's systems
are not as developed as in a child who has lived a
22 term or born a term.

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A. Yes, it is immaturity that

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is the problem.

Q. The child may be less able
to adapt to its environment?

A. Yes.

Q. All right then, fifthly, and
what I hope I can take as a separate category,
whether the child has a low birth weight you have
indicated may increase the risk?

A. Yes.

Q. You have used the term
'small for gestational age', or I have seen the
term 'small for gestational age', can we equate that
to low birth weight?

A. Babies that are small for
gestational age usually do have a low birth weight,
but they are not necessarily the same as a premature
baby.

Q. All right. Is it fair to
put premature in a separate category?

A. It is preferable if one can.
That information is not always available for one to
do it but ideally they are different infants.

Q. Just an aside question. What
is term for a baby, is it 40 weeks?

A. Yes.



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Rowe, cr.ex.
(Strathy)

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Q. 40 weeks?
A. Yes.
Q. Obviously that's an average?
A. Yes.



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Q. Now, the next category which I have is No. 6, is whether the child has failed to thrive. That is obviously something that might increase the risk?

A. Yes, we believe that very firmly.

Q. And lastly, I have a note that whether or not a child has had surgery may affect the risk factor. As I understood it, referring to one of the studies, it was suggested that children who had had surgery were perhaps at greater risk, or am I misinterpreting that?

A. I think there is a sort of element of truth to both ways of looking at that. There is evidence from the New England Study that there is a higher risk of mortality in patients who are being operated on under the age of 2 months. In general, I think most groups would agree that the younger the baby is, in the first month or the second month, that is true.

THE COMMISSIONER: The suggestion Mr. Strathy was putting to you was the fact that a child who had had surgery put him at a greater risk, am I correct?

MR. STRATHY: Yes, as I understood it the Doctor was suggesting that that is in fact ---



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THE COMMISSIONER: That is not what I heard him say. What he is saying is there is a greater risk of a child dying under surgery at a particularly low age.

MR. STRATHY: Q. Is that in the course of surgery, Doctor?

A. Yes, that is during the course of surgery. I think it may also be true for some malformations, particularly today when surgical interventions have become much more feasible and borderline, the patient who is borderline inevitable death, if you like to put that complicated term to work, that in some cases while it may not accelerate the death of the patient it may indeed not end up as a survivor as one might have hoped.

Q. To put a point on it there are patients today on whom you are operating that five years ago you would have simply said, death is inevitable?

A. That is right.

Q. Well, I have listed six or seven factors, Doctor, as going to increasing the risk. Would you agree with me that any one or more of those factors may increase the risk of a particular child dying?



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A. Yes.

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Q And that the combination of those factors together may also increase the risk obviously?

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A. Yes, they may do.

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THE COMMISSIONER: Would this be a good time?

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MR. STRATHY: Yes, sir.

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THE COMMISSIONER: All right, we will take 20 minutes.

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--- Short recess

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--- Upon resuming:

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THE COMMISSIONER: Yes, Mr. Strathy.

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MR. STRATHY: Q Doctor, I would like to now take you through the group of patients which I have singled out that I have some questions about.

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Let me begin with Laura Woodcock who is the child that died on June 30th of 1980. I am not sure that in every case we are going to need, Mr. Commissioner, the medical records. My questions will be in some cases fairly brief, but I think in this case we will, so it is Laura Woodcock, and Dr. Rowe has it in front of him.

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Doctor, first of all let me ask you to turn to page 51. Doctor, this was a patient which it appears that you had the benefit of viewing, was

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that because you were the Ward Chief at the time?

A. Yes, it was, I believe.

Q. And that signature mid way down page 51 is your signature?

A. It is.

Q. And in the very last sentence as you pointed out in your evidence in-chief, you have said the cause of the death, I am sorry, the cause of the episode is thus quite uncertain. You mentioned that because of your concern it was decided to notify the coroner at the time?

A. Yes.

Q. And obviously the precise reason for the child's death had troubled you when it occurred?

A. Yes, it did.

Q. But you also told us that the autopsy finding satisfied you as to the cause of death. I wanted to ask you about this case as an illustration of the type of assistance you get from autopsies. Could you turn to page 30 of the chart, please. What I would like you to do, and I wasn't quite clear as to what it was in the autopsy that satisfied you about this child's death. Can you, in words that Mr. Scott and I would both understand, tell us please what it was in the autopsy that explained the death?



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A. I think the main feature was a finding of extensive bilateral pneumonia in this baby. It certainly wasn't, as I had said earlier, the presence of the congenital cardiac malformations which were minor, and that was the finding together with the observations there was no other abnormality in the heart that explained some of the things we couldn't understand during life, which were the appearances radiologically of the lungs and that had led to the concern about some degree of heart failure earlier. So it was the lung issue that appeared to me to explain the death.

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Q And was pneumonia something that was suspected during lifetime?

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A. I don't think that was the case, I think it was felt to be fluid in the lung rather than pneumonia.

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Q And is the pneumonia in your mind a satisfactory explanation for the death of this particular child?

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A. Yes, it is, particularly in view of the age of the baby.

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Q The age being only 18 days at death?

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A. Yes.

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Q And would you agree with me that this particular case, Laura Woodcock, is perhaps a good example of the way that autopsy findings can assist you in coming to a conclusion about a child's death?

A. Yes, I do think so.

Q Now the next case I would like to refer you to is Amber Dawson, and I am referring at this point to Exhibit 129 which was your summary of the June to September deaths. Do you have it in front of you?

A. Yes.

Q Exhibit 129, and mid way down the first page it classifies Amber Dawson as "L". I understand that to mean low risk in your assessment, is that right?

A. Relatively low, yes, it means less than 40 per cent.

Q So can we read that "L" as meaning something under 40 per cent in the same way as you have done it on one of the other exhibits?

A. Yes.

Q Well, I wanted to ask you about that child in light of that classification of "L" and I am going to put to you some facts about this child



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which I would suggest to you put the child at the higher end of the risk, and I hope you will take these from me. If you have difficulty with these facts, let me know.

First of all, my reading of the record indicates she was in the very low birth weight category, that is her birth weight was 1.8 kilograms, now in fact she was 11 months old at her death but she had been a very low birth weight baby?

A. Yes.

Q. Now the second thing is she had a serious problem with failure to thrive, at 11 months of age she was only 3.8 kilograms?

A. Yes.

Q. And my calculation is that comes to about 8-1/2 pounds which is a healthy weight for a newborn, let alone an 11 month old baby?

A. Certainly not very good.

Q. For an 11 month old baby 8-1/2 pounds is not good?

A. No.

Q. And would you agree with me that that fact alone pushes her risk up?

A. Yes.

Q. And you also indicated, from



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reviewing the chart, that this baby had serious respiratory problems which again I think you will agree put her at an increased risk level?

A. Yes.

Q. And in addition there was at least some evidence that the child's condition had been deteriorating over the previous 24 hours, do you recall that?

A. Yes.

Q. And I am going to suggest to you that in light of those circumstances Baby Dawson was perhaps certainly at the higher end of that low risk category, would you agree with that?

A. I would.

Q. And Dr. Bain, I have a note of what Dr. Bain said about this child and I am going to quote it for you. Mr. Commissioner, if you would like me to refer to where it comes from in Dr. Bain's report I think I can do it, but it might be simpler if I just quoted Dr. Bain. This is page 5 of Dr. Bain's report, Exhibit 48 I think it is.

THE COMMISSIONER: It is page 4.

MR. STRATHY: It starts on page 4.

Q. Now, sir, the quote is on page 5 but let me read it to you, Doctor, the full quote.



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Dr. Bain put this baby in a category which he called

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"Group 1B", which he felt could be excluded from

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concern on clinical grounds. He said:

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"They had serious medical problems

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and were at considerable increased

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risk of dying, however a word of

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explanation is required for each of

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them for a variety of reasons."

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/BN/ak

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2 And with respect to Amber Dawson he said this:

3 "Amber Dawson is placed in this
4 category for several reasons. She
5 was almost one year old and had had
6 open heart surgery at age nine months.
7 Following this she had a paralyzed
8 diaphragm, had several hospital
9 admissions and required digoxin and
10 diuretic to keep her out of heart
11 failure. However, her general condi-
12 tion, although poor, was stable until
13 about the day before her arrest. At
14 this time her respiration became rapid
15 and laboured.

16 At autopsy there was softening of the
17 upper end of the stomach with actual
18 perforation which they felt was
19 precipitated by vomiting. Her lung
20 was collapsed. I feel that it is
21 virtually certain that the perforation
22 of the stomach was sufficient to
23 trigger her cardiac arrest in her
24 poor condition. Again, I see nothing
25 suspicious."

May I take it, first of all, Doctor, with respect to



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Amber Dawson's death that you would agree with
Dr. Bain's conclusion that he sees nothing suspicious?

A. Yes.

Q. And let me ask you to assist
us, please, as far as the perforation of the stomach
is concerned. He says:

"I feel that it is virtually certain
that the perforation of the stomach
was positioned to trigger her cardiac
arrest in her poor condition."

What is a perforation of the stomach and how does it
occur?

A. A perforation of the stomach
is an area of thinning of the stomach wall which
ultimately ruptures, and so the stomach contents
can escape into the abdominal cavity, and I do not
know exactly how that is caused.

Q. In any event, the perforation
of the stomach was observed on autopsy, was it?

A. Yes, it was a finding at
autopsy.

Q. And Dr. Bain suggests that
that was sufficient to trigger her cardiac arrest in
her poor condition, and would you agree with that?

A. Well, I do not know that I



1
2 entirely agree with that. I think, as I have said
3 before, I bow to Dr. Bain's superior knowledge of
4 pediatrics, but I would have thought that the change
5 in the respiratory function in this baby might have
6 been enough on its own to cause the arrest.

7 THE COMMISSIONER: Sorry, the
8 change in?

9 THE WITNESS: The respiratory
10 function. The baby developed in the last short
11 time before death evidence of respiratory insufficiency
12 as evidenced by increased respiratory difficulty and
13 increased amount of carbon dioxide being retained in
14 the blood, and that is a particularly high risk
15 problem for small debilitated babies.

16 MR. STRATHY: Q. Would that
17 respiratory problem be explained by the fact that
18 the baby's lung was collapsed?

19 A. Yes, and by the -- I think
20 the diaphragm was paralyzed, but presumably there
21 was some additional lung collapse at the time.

22 Q. In any event, whether or not
23 you precisely agree with Dr. Bain on the cause of
24 death, would it be fair to say that the perforation
25 of the stomach certainly would not do the baby any
good in her condition?



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A. No, you know, he may be perfectly right.

Q. Well, it may well have been a contributing factor?

A. Yes.

Q. Dr. Bain suggested that the perforation of the stomach may have been precipitated by vomiting. Is that something that happens, in your experience?

A. I do not have any experience in that area at all.

Q. Fair enough. One last question about Baby Dawson and it emanates from Exhibit No. 64, which was Dr. Trusler's letter to you, Dr. Rowe, in December of 1980, and I will just -- Exhibit 64.

In his letter, Dr. Trusler reviews several babies, amongst them Amber Dawson, and with respect to Amber Dawson he says:

"There was a failure of adequate follow-up with this child. I believe she should have had the diaphragm plicated..."
P-l-i-c-a-t-e-d. What does having the diaphragm plicated mean?

A. This is a surgical procedure



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3 that is employed sometimes for the situation when
4 one diaphragm, a hemidiaphragm, as it is called, is
5 paralyzed, and instead of the diaphragm responding
6 as it does when it is paralyzed in a paradoxical
7 fashion with breathing, you can stabilize the
8 diaphragm into a neutral position. It just makes it
9 much tighter, like tightening the skin of a drum
10 and does not allow the flexibility of movement to
11 the same degree. This helps stabilize the respirations
12 of whatever side the diaphragm is paralyzed. So it
13 does have a benefit. It is not used in every case
14 and there is some debate about the time to intervene.

15 Q. Is that plication of a
16 diaphragm, is that involving surgery?

17 A. Yes, it does.

18 Q. So as I read the letter,
19 Dr. Trusler is at least suggesting that some surgery
20 may have benefited Amber Dawson with respect to
21 her respiratory problems?

22 A. Yes, and in fact I believe
23 that she was finally sent down with that possibility
24 in mind from her other hospital.

25 Q. With a view possibly to getting
into surgery for that?

A. Yes, I believe so.



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Q. So this may be one of those instances where had surgery occurred earlier, the child might have been able to be given more assistance?

A. Well, I think in retrospect that is quite possible.

Q. Thank you. Next then is Baby Velasquez, and I am trying to deal with these chronologically, Mr. Commissioner.

Referring to the medical records of Baby Velasquez at page 5, which is the second page of Dr. Wilkinson's summary of the events preceding the child's death, I would like to read that to you in segments and just ask you some questions about it.. First of all, it starts out:

"At about 3:00 a.m. August 24 I was called to see Antonio because of bradycardia (less than 90 per minute). When I arrived at the bedside, Antonio was somnolent and difficult to arouse. Peripheral pulses were easily felt except in the right arm due to the shunt. Blood pressure in the left arm was 90 p, temperature was 35.3, pupils were constricted, abdomen was soft, liver edge was sharp and no more



"than 2 centimetres below the right costal margin. Because of the papillary finding and the bradycardia and slowed respirations, I felt the child had had too much codeine..."

Stopping there, Doctor, do I understand that you agree with Dr. Wilkinson's assessment of the child's symptoms?

A. Yes, I do. That word is supposed to be "pupillary".

Q. Instead of papillary, pupillary. Well, it shows you how much I know about medicine then. That is what the eyes are doing.

A. I missed it the first time around, yes.

Q. So that the pupils, in other words, were constricted; is that what he is talking about?

A. That is what he means, which is an effective narcotic like medication.

Q. Well, you agree with that assessment. May I take it, though, the codeine administered to the child up until that point was certainly considered to be at therapeutic levels in therapeutic doses?



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A. Yes, it was. The doses were given fairly close together, not, in my view, anything inappropriate but they were fairly close together and it is conceivable that that might have had something to do with this.

Q. There may have been some sort of codeine build-up in the child?

A. Yes.

Q. Dr. Wilkinson goes on and says:

"...and asked for .4 milligrams of naloxone to be drawn up. A new IV had to be started and this was done in a right temporal scalp vein. The IV solution was connected and .2 milligrams naloxone was given IV (half cc into the tubing)."

Now, as I understand it, you would agree with administering naloxone, but what gives you concern in this particular case is that the doctor apparently administered twice the appropriate dose?

A. It is about somewhere between two and two and a half times the usual dose.

Q. And apart from that, that is the only factor which gives you concern about what



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the doctor did, that he gave too much?

A. Yes.

Q. Naloxone was quite appropriate to administer?

A. Oh, yes.

Q. Incidentally, am I correct that it is the responsibility of the doctor as opposed to the nurse to know how much of a particular medication is administered to a child in a particular circumstance?

A. Yes, it is.

Q. Now then, going on, Dr. Wilkinson says:

"Within five minutes the heart rate increased to 140 per minute, pupils dilated to 2 to 3 millimetres and were responding more briskly to light. Antonio's activity increased but he did not become fully awake." As I understand it, your view is that those responses would indicate to you that the naloxone was working?

A. Yes.

Q. And presumably they would also confirm the original diagnosis of too much codeine?



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A. Too much codeine effect.

Q. Yes.

A. Yes.

Q. And I further understand

that those responses suggest to you that digoxin toxicity was not a problem in this particular child?

A. There were some discrepancies

there. The pupils in digoxin intoxication are usually dilated, and they were not in this case. I think that is probably the principal factor there.

Q. Well, I also understood you

to say that if the child was suffering from digoxin intoxication, the naloxone would not have had this effect of, in effect, perking up the child?

A. I would not have anticipated that sort of response, that is true.

Q. Then carrying on, it says:

"The remainder of the naloxone was given into the IV tubing with the intention to run it at a steady rate, but Antonio promptly had extensor posturing and loss of detectable cardiac electromechanical activity."

May I suggest to you that that reaction, that is, extensor posturing and loss of detectable cardiac

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electromechanical activity is not one which one would expect if there was digoxin toxicity?

A. Well, I think you may have that in -- that may occur.

Q. All right. That extensor posturing?

A. Yes, convulsions have been reported, seizure activity has been reported with digoxin activity.

Q. Is that what extensor posturing is, seizure activity?

A. I think so.

Q. The fact that the doctor reports that promptly after giving the remaining naloxone the child had these symptoms, is that what you refer to as the temporal relationship between the naloxone and the death?



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A. I think that was referred to,
I'm not sure whether I used those terms or others used
those terms.

Q. I'm sorry, looking just over
the page, I think page 6 near the middle of the page,
Dr. Freedom in his memo to you says ---

A. That's right.

Q. Says:

"On review Sunday morning of the
events leading to this child's death
I was concerned about the temporal
relationship to the second dose of
narcen".

A. Yes.

Q. Is that what he means, the
fact that death happened so soon after that second
dose?

A. Yes, presumably after the
apparent improvement.

Q. And may I suggest that that
fact, the fact that it did happen virtually immediately
or promptly after that dose suggests that there may
be some relationship to the naloxone?

A. Yes.

Q. And that is what gives you,
for example, trouble when it happened?



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A. Yes.

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Q. And that reaction of the child,

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the extensor posturing or the seizure and the loss

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of detectable cardiac electrical mechanical activity

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is the type of thing that one might expect if there

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was an idiosyncratic reaction to the drug?

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A. Well, I don't know for sure but

I think this is how I interpreted it at the time.

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Q. That's how you interpreted

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those symptoms?

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A. Yes.

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Q. And the explanation at the time,

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Doctor, given to the child's parents was that the child

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had had an idiosyncratic reaction to the drug?

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A. Yes.

16

Q. And do I understand as well

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that that is the best explanation you can give today

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A. That's the best explanation I

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can give, yes.

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Q. Thank you. Now, you get a moment

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of ^{peace} ~~piece~~, Doctor, because the next child I am going

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to ask about is a question to Mr. Lamek, not to you

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because you didn't talk about this particular child

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and it may be that I didn't follow closely enough in

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1
2 the beginning when Mr. Lamek was explaining the
3 children he was going to review, but Mr. Commissioner,
4 at page 72 of the Statement of Prima Facie Facts there
5 is a reference to a child called David Jenkinson.
6 Page 72, paragraph 34.

7 By my reading, that child died, as I
8 see it, on Ward 4B during the review period, that is,
9 on September 15th, 1980 and I wasn't entirely sure
10 why he was excluded.

11 THE COMMISSIONER: He was excluded,
12 according to the list here because he died in the
13 ICU. He went to the orderly room and then to the
14 ICU. It's on the list at page 44.

15 MR. STRATHY: Page?

16 THE COMMISSIONER: Page 44 in the
17 Statement of Facts.

18 He was excluded, am I not right?

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MR.LAMEK: That's exactly right, Mr.
Commissioner.

MR. STRATHY: And he is excluded because
he went to the ICU...

MR. LAMEK: From the operating room.

THE COMMISSIONER: From the orderly
room - from the operating room.

MR. STRATHY: All right. Well, I do
have a question for Dr. Rowe.

Q. Because, Doctor, in the
explanation about this child given in paragraph 34,
if you could just read the last six or eight lines
which talks about the day of death.

A.

"On the day of death the digoxin blood
level was higher than 4.7 nanograms
per ml (8.0 nanograms per ml in Dr.
Ellis' book)."

Q. That's fine, that's what I
wanted to refer you to which, as I see it, suggests,
at least according to Dr. Ellis, you have a measurement
in this child of 8 nanograms per ml. Would you agree
with me that that is a rather high level of digoxin
in the child's blood?



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A. Yes.

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Q. It is about in fact, if it is an accurate reading, about four times what one would expect in the therapeutic doses?

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A. Well, that might be debated but I think it is higher than you would certainly accept ordinarily.

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Q. And may I ask you, Doctor, does that fact, the 8 nanograms per ml and to be fair to you I haven't shown you anything except that paragraph, but does that fact give you any concern that the child's death may have been related to digoxin?

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A. If that was a level taken at an appropriate time and not a falsely elevated level because of inappropriate collection and was taken from blood prior to death, then that would give you a concern.

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Q. All right. Now, I can't answer your questions, Doctor, and perhaps the only thing that can answer those questions or those caveats are the child's chart, and perhaps Mr. Lamek would oblige us at some point.

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MR. LAMEK: Yes, gladly.

MR. STRATHY: Just to mention that death for one more moment, Doctor. Assuming that the



Rowe, ex.
(Strathy)

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levels were taken at an appropriate time and assuming that those levels were pre mortem, would I be correct in understanding that the levels themselves would give you concern?

A. Yes.

Q. Not knowing anything else about the patient, a level as high as 8 would trouble you?

A. Yes.

Q. Thank you. Now then, let me turn to Baby Gage, Brian Gage.

Now, this is another baby like Dawson I believe that you have categorized on Exhibit 129 as a lower risk child. Again, I wanted to ask you some questions which at least in my reading of your evidence suggests that the child should be placed at the higher end of that classification. Once again, I hope you will take it from me that this summary is correct, if you have any difficulty let me know.

First of all, the child is premature, he was born at 36 weeks gestation, so, he would be about a month premature; secondly, his birth weight was 2500 grams, about 5½ pounds.

Q. Now, would that be related to his prematurity?



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A. Yes, I think so.

Q. In any event, those two factors alone, his prematurity and what his birth weight is, would increase the risk in the child?

THE COMMISSIONER: Unless things have changed, I think that's a pretty big weight for a premature baby.

MR. STRATHY: Well, maybe the doctor can tell us.

A. Well, 2500 grams is the usual weight.

MR. SHINEHOFT: Can you ask the witness to speak up, please.

THE COMMISSIONER: Well, that answers my question, I was asking whether it was working.

THE REGISTRAR: No, the power is off.

THE COMMISSIONER: Well, how is it now, is it all right. I think we'll just have to ... Well, I think we will just have to ---

MR. STRATHY: Well, I don't mind trying without the power for a little while.

MR. LAMEK: People can't hear the witness.

THE COMMISSIONER: Can you hear better at the back?



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MR. STRATHY: We will ask the Doctor.

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Doctor, the 2500 grams weight, is that an appropriate weight for a baby at 36 weeks gestation?

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A. That could be. The 2500 grams cut off is the one that is used for premature babies. This baby had transposition of the great arteries and those babies tend to be heavier at birth than all other babies with congenital heart disease. So, that would seem to me to be probably true.

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Q. Well, accepting that the child was premature, 36 weeks, would you agree with me that that in itself was a factor which would increase the risk?

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A. Yes, it does. There is evidence to show that transposition babies who are on the lower birth weight range, compared to other transposition babies who are in the heavier weight range have a higher risk.

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Q. Now, this child was 29 days old at the time of death, which at least puts her within that first month high risk period and, as you have mentioned, she had transposition of the great arteries which, as I understand it, is a major cause of death in that age group; is that correct?

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A. In the first year of life?



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Q. My understanding was in the first two months of life?

A. Yes, it is.

Q. Then the child had a near arrest, or what was described as a near arrest at the time of his cardiac catheterization about three weeks prior to death and I would suggest that is at least some evidence of the relatively fragile state of the child?

A. Yes.

Q. The child had a renal problem which was referred to as tubular nephrosis of the kidneys which was thought to be related to what happened at the time of his near arrest and would you agree with me that that renal problem may have increased the extent to which the child was at risk?

A. Yes.

Q. The child was described as being in a moderately severe congestive heart failure and he was also described as suffering from failure to thrive.

Considering all those facts, Doctor, would you agree with the suggestion that Brian Gage is at the higher end of that risk category?

A. Of the low risk?



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Q. Yes.

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A. Yes.

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Q. In any event, I take it you

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are entirely satisfied having reviewed this particular

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case that the child's death was due to this, and is

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satisfactorily explained by his congenital condition

and his clinical history?

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A. Yes.

9

Q. I'm sorry?

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A. Yes, I do, I am.

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Q. While we are on the subject of

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Brian Gage I want to ask you one question and it

13

relates to the expression which maybe I have used in

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my own thinking of referring to triggering events,

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and I think in this particular child's chart there was

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some reference to the arrest or near arrest which

occurred at the time of cardiac catheterization.

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Do I understand that some of these

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babies, the babies that are at high risk, their deaths

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may be in effect triggered by relatively innocuous

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occurrences. In other words, it may not take much

to push a fragile baby over into a death situation?

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A. Yes, I would agree with that.

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Q. And would it be possible, say,

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taking a baby in this high risk category, or a high

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risk category that some event like a cardiac
catheterization might trigger an arrest?

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A. Yes.

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Q. I can't point to the chart
but I recall at least one case where an arrest
occurred while they were inserting a nasal gastric
tube. Would that be the sort of thing that might
trigger an arrest in a fragile baby?

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A. Yes.
Q. Can you tell us why those
things might do that?

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Even just positioning the head, or the neck of a baby in this situation, in an unusual fashion, might trigger the vagal reflect of that sort. So even the act of vomiting, or the tube being passed, or the neck being stretched in some unusual way, might be vagal stimulants.

THE COMMISSIONER: What does vagal mean?

MR. STRATHY: That was my next question, what does vagal mean?

THE COMMISSIONER: I thought I was the only person that didn't know.

THE WITNESS: The vagal nerve is a nerve which has a profound influence on the heart in terms of slowing the heart. The effects come from the brain, but - that is the motor part of the arch of the reflex comes from the brain, but the brain receives through receptor trains a message that effects the strong stimulus to the vagus nerve and that is particularly strong in small babies. As you get older that reflex becomes less pronounced. I can only demonstrate that by the fact that if a baby becomes hypoxic.

MR. STRATHY: Q That is lack of ---

A. Lack of oxygen, then the heart rate slows very, very clearly in small babies, especially in the first month or two of life. If you



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do that to an adult the heart rate increases, it is the predominance of the effect of slowing over the effect of acceleration that exists in small babies, that is the problem.

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Q. So these acts of the nasal gastric tubing inserted, or the cardiac catheterization may affect that reflex?

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A. Yes.

Q. And in effect throw the baby into bradycardia, is that it?

A. Yes. Often when that is being done in perfectly, well, not perfectly healthy children because it is never done in perfectly healthy children, but those who are not particularly otherwise sick because of the heart, their rate slows, but it doesn't stop, it may just slow.

Q. But on the other hand it may stop if the baby is particularly fragile?

A. Yes.

Q. The next child is Antonio Adamo, and I am not sure, Doctor, that we will need the medical records of this particular patient, but you could have them at your side. This child was classified by you as a high risk child, on Exhibit 132. Let me just mention a couple of points. First of all, he was



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very young, he was only nine days old at the time of

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death. He demonstrated a complex set of heart

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malformations, dextrocardia situs inversus and complex

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pulmonary stenosis, and I believe that you would agree

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that the child was at a high risk of dying in precisely
the way he did?

7

A. Yes.

8

Q And with regard to digoxin we

9

know that the child was on digoxin but there were no

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pre-mortem digoxin levels taken for Antonio Adamo?

11

A. That's right.

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THE COMMISSIONER: I am not sure that

13

is right.

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MR. STRATHY: Q I hope it is right.

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A. Yes. I don't think there were

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any taken.

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Q He was receiving digoxin but

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there was no record of levels?

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A. Yes.

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Q That is my recollection and I

think it is even in the ---

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THE COMMISSIONER: I think a test was

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ordered but he died before he had it.

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THE WITNESS: It was a weekend, Mr.

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Commissioner, and ---

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THE COMMISSIONER: Is that it?

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THE WITNESS: ... he was to get the
tests I think on the Monday.

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MR. STRATHY: Certainly my note is to
that effect.

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THE COMMISSIONER: To which effect?

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MR. STRATHY: He was on digoxin but
that there were no premortem levels.

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THE COMMISSIONER: Antemortem levels.

MR. STRATHY: Antemortem levels, excuse
me.

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THE COMMISSIONER: I think you are
right that is so, but I just qualify it my note is
to the effect one was ordered but the child died
before it could be taken.

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MR. STRATHY: That may well be, the
Statement of Facts just simply says no pre, ante or
post mortem digoxin measurements were performed.

Q So in any event, Doctor, you were
asked by Mr. Lamek with respect to Antonio Adamo's
death as you were in many, many others, whether the
symptoms which the child exhibited at death were
consistent with digoxin intoxication and you indicated
in this case as in many others that there were, do you
recall that?



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A. Yes.

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Q. Would you agree with me though

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that without antemortem, or postmortem digoxin

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measurements in this child, it is virtually impossible

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to say whether digoxin did or did not play any role
in his death?

7

A. Yes.

8

Q. You can say it is possible that

9

it played a role, or perhaps to put it another way

10

you could say it is not impossible that it played a

11

role, but you really simply cannot say in any way

12

whether it did or did not?

13

A. Right.

14

Q. Would you agree with me that as

15

a responsible Cardiologist all you can do, Doctor, is

16

look at the death, look at the evidence which you see

17

in the chart, and look at the inquiries you have made,

18

and come to a conclusion that as far as you are

19

concerned you are satisfied that the death is

explained on medical and clinical grounds?

20

A. Yes, I do.

21

Q. Now, the next patient is John

22

Onofre, and this was another patient whom you classified

23

as being at high risk. You indicated during your

24

evidence that there was some concern about the death

25



K.6

1
2 when it occurred, but after autopsy the doctors
3 involved in the child's care were not surprised about
4 the death.

5 I wonder if I could refer you to page
6 32 and 33 of the chart and I will give you a minute
7 to look at those because I need some help in under-
8 standing the final autopsy report. Perhaps you could
9 look at that report and tell us, please, what it was
10 in the autopsy that satisfied you as to the reasons
for the child's death?

11 A. I think there were three things
12 in there I remember we were - we felt were important.

13 Q. Page 32, excuse me, to --

14 A. Page 32:
15 the first one of course, there was the underlying
16 malformation itself with a relatively small orifice
17 to the shunt which had been performed to try and help.
18 So that was a borderline situation perhaps.

19 Q. That was post-operatively it was
20 borderline?

21 A. Yes, but the most important part
22 perhaps were the fact that there was sepsis and
23 particularly coliform organisms, E.coli were cultured
24 from a number of areas in the body, and that of course
25 is a very serious infection for a newborn.

Q. Well sepsis refers to infection
and E.coli refers to the type of infection?



K.7

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2

A. That is right.

3

Q. What is E.coli?

2.

4

A. It is the organism, the bacteria

5

that is responsible, it is a bacterium that is found
in the bowel ordinarily, but when it is found in the
blood and in other positions in the body then it is
an indication of widespread sepsis.

8

Q. Anything else?

9

A. And the only other point was the

10

contraction band necrosis that was found in the

11

anterior part of the septum, and the question is

12

whether that contributed by initiating an arrhythmia
or did not?

13

Q. And on reviewing that autopsy

14

may I take it that you are satisfied that there was

15

a clinical medical explanation for the child's death?

16

A. Yes, I was. In regard to the

17

arrhythmia, I might just make the observation that

18

that arrhythmia had been present before the baby

19

actually had any surgery. It was in fact one of the

20

major reasons for transferring the baby. So that

21

the arrhythmia which we always regard as a little bit
of concern at that age in this setting, may have been

22

more important than perhaps we might otherwise have

23

thought. I would agree there was enough medical

24

25



K.8

1
2 reason to account for the death after we had reviewed
3 the autopsy.

4 Q The arrhythmia being a clinical
5 diagnosis, No. 3, on page 32 at the top?

6 A Yes.

7 Q Now let us turn to Baby D'Arcy
8 MacDonald. Now you have rated Baby MacDonald on
9 Exhibit No. 127 as being in the high risk category,
10 and I want to make sure I understand the reasons for
11 that.

12 First of all, he is shown as having
13 Down's Syndrome. Secondly, he is shown as being
14 5 months old at the date of death. Thirdly, he had
15 a low birth weight of 2.1 kilograms. Are there any
16 other reasons which in your view put Baby MacDonald
17 in that category? Incidentally, I didn't mention it
18 but he was apparently in severe congestive heart
19 failure as well.

20 A I cannot remember whether at the
21 time - I would have to check my other notes, but I
22 believe there was some question of pneumonia, but I
23 can't remember whether we thought that in life or
24 whether that was ---

25 Q If you look at page 40 of the
chart there is a reference under Anatomical Diagnosis



K.9

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2

No. 3, of viral pneumonitis?

3

A. Yes, I see that.

4

Q. And that is after death?

5

A. Yes. I am looking to see

6

whether we thought, whether there as pneumonia before,

7

whether we thought there was pneumonia before death and

8

I can't remember exactly what I thought about that.

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Q. Well then, along with the child's congenital heart problem, have I listed the factors that go into your assessment of the child being high risk?

A. Yes.

Q. May I take it that this is another case where the viral pneumonia gives you a satisfactory explanation post mortem?

A. Yes, together with the congenital heart disease.

Q. Is that your assessment of why this particular child died, a combination of a severe congenital heart disease complicated by viral pneumonia?

A. Yes.

Q. Then looking at Exhibit 127 with the benefit of hindsight and knowing that this child had viral pneumonia discovered post mortem, you would have no hesitation in placing him precisely where he was, namely, high risk?

A. No, I think that we must have put him in that high risk group because there was clinical evidence of lung infection or some respiratory illness.

Q. There was some concern with



1
2 his respiration prior to death?

3 A. Yes.

4 MR. OLAH: Perhaps to assist the
5 Doctor, if he turns to page 45 of the report, Discharge
6 Report, he talks about congestion in both lungs as
7 well as several patchy densities suggestive of
8 condensation in both upper lobe and in the right lower
9 lobe. I do not know if that assists the Doctor.

10 THE WITNESS: Thank you very much.
11 That does. That means that the view was that the
12 patient had pneumonia at that time.

13 MR. STRATHY: Q. That is prior to
14 death?

15 A. Yes.

16 Q. Thank you. Next, Doctor, is
17 Baby Gosselin, another high risk baby. You described
18 this child as suffering from very severe coarctation
19 of aorta, and I think you said it was either similar
20 to or at one end of the spectrum of the hypoplastic
21 left heart syndrome; is that right?

22 A. I did.

23 Q. And as I understand it, and
24 to put it in very simple terms, what you are trying
25 to do with these babies is you are trying to keep
the ductus open until the child can get to surgery;



1

2

is that right?

3

A. Yes.

4

Q. It is virtually fair to look

5

at the ductus as the lifeline that keeps the child

6

alive?

7

A. Yes, it may do.

8

Q. I am sorry?

9

A. It may do.

10

Q. And that there is a distinct

11

danger of the ductus closing off and in effect the
child dying very soon after that happening?

12

A. Yes.

13

Q. So one of the things you do

14

is you administer prostaglandins to try and keep
that ductus open?

15

A. Prostaglandins, yes.

16

Q. Do you do that to keep the

17

ductus open or to open it up?

18

A. Both.

19

Q. Both. And as I understood

20

your evidence in this case after you discussed it

21

I believe with Dr. Olley, O-l-l-e-y?

22

A. Yes, that was much later;

23

that was some time later.

24

Q. Dr. Olley was not involved in

25



1

2

the treatment of this child?

3

A. I do not believe so.

4

Q. So he was just someone at

5

the Hospital with whom you discussed this case to

6

try and come to some conclusion as to why the child
died?

7

8

A. Yes. He is the local

9

authority on prostaglandins in our team, so that

10

if there is a problem or a question about prosta-
glandins action, then we usually turn to him.

11

Q. To be fair to Dr. Olley, I

12

think you suggested that he is one of the world's

13

experts on the subject?

14

A. Yes, I believe he is.

15

Q. What Dr. Olley suggested

16

to you is that what may have happened in this child

17

is that the effect of prostaglandins was to open up
the ductus too quickly?

18

A. Yes, that is one of the

19

possibilities I think that he discusses.

20

Q. And if that had happened,

21

if the ductus had opened up too quickly, that would
certainly account for the way the child died?

22

23

A. That would. The evidence

24

does not suggest that, though.

25

Q. Would you tell us what the



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evidence does suggest, in your view?

A. Well, the evidence suggests we were not opening up the ductus as well as we had hoped to be able to achieve, if I remember -- if I am not confusing this with somebody else.

Q. No, I think you did point out that this child was somewhat older and therefore the ductus was not quite as subject to manipulation?

A. Yes, that would be true.

Q. So do I take it, then, that your view is having reviewed all the evidence, including Dr. Olley's views, that the prostaglandins just was not able to do its job as well as you might hope?

A. Yes.

Q. And that the child's ductus closed off and death ensued?

A. Yes.

Q. Now, Baby Real Gosselin was certainly not a child whom you would describe as being terminally ill; is that fair?

A. He was critically ill.

Q. Well, he was critically ill.

A. Yes.

Q. No question of that, but he



L7

- 1
2 was not terminally ill in the sense that there was
3 absolutely no hope for him, that is what I mean.
4 A. I am sorry, yes, I would
5 hope not, no.
6 Q. Well, we have seen some
7 babies, and I forget the one and I apologize for
8 forgetting, but there was one baby, for example,
9 where it was just a matter of keeping the child as
10 comfortable as possible because you knew that death
11 was inevitable?
12 A. Oh, I see, yes, I am sorry,
13 that is what you mean, surely.
14 Q. But this Baby Gosselin does
15 not fall into that category?
16 A. No, we would not regard that
17 so.
18 Q. You would hope to get Baby
19 Gosselin to surgery and perhaps be able to improve
20 his condition?
21 A. Yes, we would always hope for
22 that.
23 Q. And if that was successful, there would
24 be a distinct possibility that the baby could grow
25 and live a useful, fruitful life; is that fair?
A. Yes.
Q. Thank you.



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THE COMMISSIONER: Do you want to ---

MR. STRATHY: The next child is
Baby Lombardo.

Mr. Commissioner, were you suggesting
that we break now?

THE COMMISSIONER: I just leave it with
you. Do you want to rise now or do you want to do
this child?

MR. STRATHY: It might be best to
rise now, if you do not mind.

THE COMMISSIONER: 2:30 then.
---Luncheon adjournment.



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---Upon resuming at 2:30 p.m.

MR. ROLAND: Mr. Commissioner, in the unending train of documents, I have two more for you. I gather you last week requested a normal electrocardiogram, and I have one, for a 23-month old baby.

THE COMMISSIONER: Thank you. Do you remember, Doctor, when this came up?

THE WITNESS: Yes, it was on page -- transcript Volume 21, page 3758 or something of that order.

THE COMMISSIONER: What page was it? What volume, 21 of the transcript?

THE WITNESS: Volume 21 of the transcript, I have got a note, at page 3758 produce admission. Maybe that is not right. No, I am sorry, page 3821 in Volume 21, and it was in connection with the electrocardiograms in the paper that looked at the electrical mode of death of children.

MR. ROLAND: Mr. Commissioner, I think that paper was Exhibit 134.

THE COMMISSIONER: 134?

MR. ROLAND: Yes, the second page of it. I think that is where the issue arose.

THE COMMISSIONER: Yes.



1
2
3 MR. ROLAND: I have also another
4 electrocardiogram of David Taylor from the Hospital,
5 and I gather that was requested last week. So I
6 tender that as the next exhibit.

7 THE COMMISSIONER: David Taylor's
8 electrocardiogram. What is the next number?

9 THE REGISTRAR: 143.

10 THE COMMISSIONER: 143, and David
11 Taylor's will be 144.

12 ---EXHIBIT NO. 143: Electrocardiogram for a 23-
13 month old baby.

14 ---EXHIBIT NO. 144: Electrocardiogram for David
15 Taylor.

16 THE COMMISSIONER: Are you going to
17 ask Dr. Rowe any questions, Mr. Roland, on this?

18 MR. ROLAND: No, I am not.

19 THE COMMISSIONER: I was wondering
20 if perhaps just for educational purposes you can show
21 us the difference, if there is a difference, between
22 the Taylor electrocardiogram and the normal one?

23 THE WITNESS: Mr. Commissioner, the
24 normal electrocardiogram is hot off the press, as it
25 were, from an infant of 23 months who had an electro-
cardiogram last Friday, and the heart rate is 100
beats a minute.



1
2 THE COMMISSIONER: And how do you
3 tell that?

4 THE WITNESS: Well, you can tell
5 that because the speed of the paper is 25 millimetres
6 a second and the number of inscriptions over those
7 number of squares tells me that it is 100 beats a
8 minute.

9 The three components of the electro-
10 cardiogram which I have tried to show in this record
11 and which were not very clear in the manuscript
12 illustration because the rate was faster prior to
13 the death of the patient, so these three components
14 are known as the P wave of the electrocardiogram,
15 which is the atrial electrical activity, the activity
16 in the atrial cavity or atrial wall, the P wave, and
17 that is identified by the three arrows for three
18 consecutive P waves. That is those very small blips.
19 The QRS is identified, although it is present of
20 course in all three sections, it is identified in
21 the middle column as the major complex of the
22 electrocardiogram, and that is the initial electrical
23 activity in the ventricles. In the third strip, the
24 lower strip, I have put the T wave, and I am afraid
25 I have chosen a rather unfortunate term for ventricular
activity, but that is the term we usually use in



1
2
3 medicine, which is that the T wave is the terminal
4 electrical activity in the ventricle but it really
5 means the late part of the ventricular activation of
6 the ventricle.

7 So the three components that are
8 easily recognizable in the electrocardiogram are
9 the P wave, the QRS complex and the T wave, which is
10 the last part of the ventricle to be electrically
11 activated or reactivated, and that was the best I
12 could do.

13 MR. PERCIVAL: Mr. Commissioner,
14 can I ask is there any significance as to how high
15 they go and how low they go? Perhaps that might be
16 of some assistance to some of us who are not familiar
17 with it.

18 THE COMMISSIONER: Yes, can you
19 help us on that, Doctor? See, in the example
20 given in Exhibit 134 ---

21 THE WITNESS: That is the Taylor
22 patient?

23 THE COMMISSIONER: No, Taylor is
24 144. It may be helpful too, but there certainly are
25 some very high ---



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THE WITNESS: Well, this electro-
cardiogram is from a child who has had an illness that
sometimes give rise to trouble with the coronary
arteries but has no evidence of that clinically.
Those complexes are what I would regard as normal in
amplitude for a baby of that age.

Now, if you have a pathological
situation the complex may have a bigger voltage and
therefore a bigger amplitude as well.

If you were to look at Exhibit 144,
which is David Taylor, then you will see, if you look
in the middle of the top strip which is labelled II,
you will see that the rate is faster there. The rate
there is about 150 beats a minute instead of 100 and
the P wave, the very first part of the electrical
activity is very substantially larger in its blip than
it is in the 23 month old relatively healthy baby.

That's really a reflection of the
disturbance of the anatomy and the hemodynamics on
the function of the atrium. This is a situation where
the atrium is enlarged and therefore the voltage and
the amplitude of the wave is bigger. The same is true
for the QRS complex which you see. This is the normal
record which is that of lead 2 which is the same
equivalent as lead 2 in the pathological situation



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with David Taylor. You can see that there is a huge difference in the QRS complex, it is about probably six or seven times taller. That again is a reflection of the amount of muscle and hypertrophy in the heart as a consequence of the abnormal process.

THE COMMISSIONER: To get right down to basics, could you just tell me, looking at Exhibit 143, what does this line, which is obviously the indication of the heartbeat, what does it correspond to? How does it record it? I take it the heart is beating throughout all of this?

THE WITNESS: Yes,

THE COMMISSIONER: It is attached in some way to the machine.

THE WITNESS: Yes.

THE COMMISSIONER: Which is recording it.

THE WITNESS: Yes.

THE COMMISSIONER: And at the beginning, as I understand it, and it is certainly at some point, it seems to record the atrial activity.

THE WITNESS: Yes.

THE COMMISSIONER: At some point it records the ventricular activity. How does it manage to do that?

THE WITNESS: Well, it is sending an



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electrical signal which is obtained from leads that are remote from the heart. These are leads that are attached to the limbs. The signal is extremely small but it is amplified electrically.

THE COMMISSIONER: The heart, does it beat that way?

THE WITNESS: Yes.

THE COMMISSIONER: I thought it all ---

THE WITNESS: That's exactly it. Each mechanical event in the heart is preceded immediately by the electrical event.

THE COMMISSIONER: I see.

THE WITNESS: So, the moment that electrical signal is inscribed and it finishes, the blip finishes for the P wave, then the atrium contracts, the muscle of the atrium contracts and the beat of the top upper portion of the heart is initiated.

The moment the QRS complex is inscribed, then the first electrical impulses are reaching the ventricle and the mechanical contraction occurs somewhere between the QRS complex and the T wave.

THE COMMISSIONER: Everybody's heart ---

THE WITNESS: Does that.

THE COMMISSIONER: --- acts in this way. In succession we have these P activity, the QRS and the T.



BB.4

1 THE WITNESS: That's right, and then
2 there is a brief pause and then it starts again. The
3 pause depends upon the rate. If you have a fast rate,
4 like in Exhibit 144, the rate is 150 a minute, then
5 there is very little interval between the T wave and
6 the P wave. But if you have a rate of a hundred a
7 minute, which is a normal rate for a baby of this age,
8 23 months, then there is an interval of an appreciable
9 degree which you can see between the end of the T and
10 the beginning of the P.

11 THE COMMISSIONER: And I take it that
12 the hills, if I can call it here, are activity of one
13 kind or another, or valleys, or the straight lines are
14 inactivities?

15 THE WITNESS: That's correct.

16 MR. PERCIVAL: Mr. Commissioner, could
17 Dr. Rowe explain the numbers on the Taylor child? I
18 think I know the answers, but so far as the individuals,
19 AVR, AVL, AVF.

20 THE WITNESS: Well, the electrocardiogram
21 records the current obtained from particular combi-
22 nations of the electrical setup. For example, the
23 leads 1, 2, 3 are combinations of right arm, left arm,
24 right arm, left leg and so on. It is the difference
25 in potential between those two points. The leads AVR,
AVL, AVF are specially augmented leads affecting the



BB.5

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2 limbs. It is a special additional group of values.
3 The leads that are labelled V4R, V3R, V-1, V-2, V-3,
4 V-4, down to V-7, are known as leads, unipolar chest
5 leads, meaning there is one electrode placed over a
6 certain part of the front of the chest and it is the
7 position over the front of the chest that is signified
8 by what is called the V-lead, the number on the V-lead.

9 In general terms, those leads reflect -
10 the V-1 for example is to the right of the sternum
11 and V-6 is a way round near the apex of the heart
12 down in the left-hand side and these leads reflect
13 the underlying electrical activity of certain parts
14 of the heart, particularly left and right ventricles.

15 THE COMMISSIONER: Yes, all right,
16 thank you.

17 MR. OLAH: Mr. Commissioner, I was
18 wondering if the Doctor could explain the significance
19 of the QRS. He indicated that it is the major complex
20 of the ECG. I was wondering what part of the heart
21 signal is actually depicted by that?

22 THE WITNESS: This is the ventricles,
23 the pumping chambers.

24 MR. OLAH: Thank you.

25 THE COMMISSIONER: All right, anything
else? All right, Mr. Strathy?



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MR. LAMEK: I'm sorry, Mr. Commissioner, but I was just wondering, Dr. Rowe. We have heard something about the digoxin effect. What part of this tracing reflects the digoxin effect, please?

THE WITNESS: The digoxin effect may affect the length of the interval between the end of the P wave and the beginning of the QRS, so that that interval may be prolonged.

MR. LAMEK: Thank you.

THE WITNESS: That's one part. The other part of the term in the way it is commonly used of digoxin effect is the portion between the end of the QRS and the T wave, so-called the ST segment, the interval and the shape of that complex. If you like to look on the normal record then when the QRS is inscribed and then the T wave follows off that, the ST segment is between the bottom, the part below the line and the part at the level at which everything is sort of neutral.

In the record of Taylor, for example, there is a depression of that segment. It seems to be depressed a little bit below the neutral line and its varying factors in the ST segment that have been regarded as digitalis effect, although, of course, that is mimicked by a whole host of other things.



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THE COMMISSIONER: All right. Mr. Strathy?

MR. STRATHY: Doctor, just before I carry on. I take it with reference to Exhibit 143 and 144, these two electrocardiograms, that one thing you can do, Doctor, is that you can look at these and it tells you something about the health of that patient, is that right?

A. Yes, especially in congenital heart disease it will.

Q But you can read and interpret these and they give you assistance in understanding what the problem is for that particular patient's heart?

A. Yes, often does.

Q Now, can I ask you then to turn to Stephanie Lombardo. The medical records are Exhibit No. 78. Again, I am not going to go into these in detail but you may want to have them handy. You referred to Baby Lombardo as being in the high risk category and you indicated in your evidence that your conclusion as to the cause of death of this child was sudden occlusion of the shunt. Do you recall that?

A. Yes, I do.



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Q And as I understand it, it was your view at the time she died, and it is also your view today, that that is why that baby died?

A Yes, it is.

Q And I take it you feel, Doctor, that it is a view which is supported by the medical evidence which you see?

A Yes.

Q And specifically you made reference to the fact that the treating physician prior to death was unable to hear a shunt murmur and one would expect to hear a shunt murmur unless the shunt had become occluded?

A That is correct.

Q And to put it in simple terms, occlusion is simply a blocking of the shunt, is that right?

A Yes.

Q However, you have indicated that this is one of the children whose name should be added to the list for debate and discussion and I take it you have given us your contribution to that debate in your evidence already?

A Yes.

Q And that what concerns you, or



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what causes you to place the child in this category is the fact that she was exhumed some 14 months after her death and traces of, and I'm going to put it in quotes again, "digoxin" were found in her system. Is that what troubles you?

A. That's right.

Q. And specifically were found in exhumed tissues?

A. Yes.

Q. And you feel that those, perhaps not more qualified than you, but those with other areas of expertise should explain to the Commission what those mean?

A. Yes.

Q. Thank you. Can we turn then to Baby Estrella.

Doctor, you have classified Baby Estrella on Exhibit No. 127 as being in the high risk category. I gather from your evidence that you actually spoke to Dr. Duncan about this baby?

A. Yes, I have.

Q. And was Dr. Duncan the Staff Cardiologist in charge of this baby?

A. He was.

Q. And again your evidence was that



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Dr. Duncan viewed Janice Estrella as one of the
sickest babies he had ever seen and one of the most
difficult to treat that he had ever seen?

4

A. Yes.

5

6

Q. And, once again, I take it you
would agree with me that having spoken to Dr. Duncan
was a helpful input from your point of view in
voicing your opinion on her death?

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A. Yes.

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Q. Now just to look at this

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baby: again it seems to me that the factors would

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point to her being at high risk, was that she was

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a Down's Syndrome baby, she had a very serious form

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of congenital heart disease, and maybe you had better

7

pronounce it, is it atria ventricularis communis?

8

A. I guess that is one title

9

for it.

10

Q. Is there any easier title

to pronounce than that?

11

A. Well, we would call that

12

atria ventricular defect.

13

Q. Atria ventricular defect.

14

A. But this is also a term that

15

has been used for a long time and it is perfectly
acceptable, just that it is more of a mouthful.

16

Q. I don't find either one of

17

them particularly easy. In any event, you would

18

agree with me that whatever you call it it is a

19

very serious form of congenital heart disease?

20

A. Yes, it is.

21

Q. Now on top of that she was

22

apparently in congestive heart failure, and according
to the chart her prognosis was poor?

23

A. Yes, she was not responding

24

well.

25

DM/ak



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Q. And apparently the treating physician put her on what we have heard referred to as "constant nursing care" which must reflect a serious concern on his part for her stability and her future.

A. I am sorry, I don't see that.

Q. Well, I think you can take it, I hope you will take it from me that that is right, I have seen a reference to it somewhere and it may have been in the Statement of Facts.

I am sorry, Mr. Percival has perhaps pointed out, are you sure or not whether she was on constant nursing care?

A. I can't remember just off-hand.

Q. Let me put it to you this way. If she was on constant nursing care would that suggest to you that the treating physicians were concerned about her prognosis?

A. Yes.

Q. But in any event, speaking generally about Baby Estrella, from a clinical and medical point of view, you are satisfied that there were clear medical reasons for her death?

A. Yes. We thought that the



death was due to heart failure, but because she had high levels of digoxin during life, we couldn't completely exclude an effect of the digoxin.

Q. All right. That is referring to the levels which she had over some period of time while she was being treated in the Hospital?

A. Yes, it is a therapeutic toxic question. *I.e. toxicity arising from therapeutic adminⁿ*

Q. That is as to whether her therapeutic treatment with digoxin was having a toxic effect?

A. Yes.

Q. But I take it that ^{what} ~~the word~~ gives you particular concern in the case of Janice Estrella is the high, or ^{? 22ug.} relatively high postmortem digoxin levels which were observed in this child?

A. Yes, that seems the main issue.

Q. And I want to be clear on this, because Mr. Ortved took you through this and I don't want to repeat what he said. I gather from your examination by Mr. Ortved that you have at least some reason, and I appreciate your perhaps limited expertise in this area, but you have some reason to be suspicious of those digoxin levels post mortem?



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2

A. Yes.

3

Q. Suspicious as to their

4

reliability?

5

A. Yes.

6

Q. And in the first place the

7

sample which I understood was taken from the pelvic

8

area, you felt that it should be viewed with suspicion

9

because it may have been contaminated with edema
fluid and ascites fluid.

10

A. It was said that it was

11

contaminated.

12

Q. And that if it was that would

13

give you concern about its reliability?

14

A. Yes.

15

Q. Now is that fluid, or that

16

sample referred to, is that called gutter blood, or
does gutter blood have some other meaning to you?

17

A. Gutter blood as I understand

18

it is blood or some solution taken from the pelvic
gutter, meaning the pelvis.

20

Q. The pelvic cavity?

21

A. In the pelvic area.

22

Q. In the pelvic area?

23

A. Yes.

24

Q. Is that something that

25



1

2

happens after death this accumulation of blood in
that area?

3

4

A. It is after a post mortem.

5

6

Q. Is it your understanding
that this is where this blood came from, the pelvic
gutter?

7

8

A. Well, I am not exactly sure
but I think that was my impression but again I
think this is a matter where those who are really
involved and the experts should give word on it.

10

11

12

Q. And then as to other samples
which I understand you had concerns about, that was
the sample that was taken from a leg vein at the time
of autopsy?

13

14

15

A. Yes.

16

17

Q. And you voiced concern
because that was in effect squeezed from the leg in
the course of autopsy?

18

19

20

A. Yes. I am not exactly sure
how that sample was taken, but the concern I had
was the milking of the leg in order to get the fluid.

21

22

23

24

Q. And your concern being that
this might have had some effect, of ineffect, to put
it in lay terms, squeezing digoxin out of the tissue,
is that it?

25



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3 A. Yes, that is the concern,
4 but again it depends on what the experts think of
5 that issue.

6 Q. Would I take it that someone
7 would squeeze the leg simply because the blood would
8 not be flowing freely at the time of the post mortem?

9 A. Yes.

10 Q. Thank you. Now then can you
11 turn to please to Colleen Warner and I just have
12 two very brief questions for you and you may not even
13 need the chart. You testified, Doctor, that the
14 death, or you described the death of Colleen Warner
15 as being sudden, do you recall that? I should give
16 you time to refresh your recollection if you would
17 like by looking at the chart.

18 A. Yes, if I may look at my
19 notes. Yes, I think I -- I can't remember exactly
20 what I said there, but I think I would have described
21 it as sudden.

22 Q. You certainly wouldn't argue
23 with the definition of it as being sudden?

24 A. No.

25 Q. As I recall you also indicated
that you were satisfied that death was explained by
the child's medical condition which was endocardial



1

2

fibroelastosis?

3

A. Yes, with the other conditions,

4

but principally the endocardial fibroelastosis.

5

Q. Now given that the child

6

was suffering from that disease, or that deformity

7

of the heart, does the fact that the child's death

8

was sudden give you any trouble?

9

A. No.

10

Q. Is that how you would expect

death to occur in a child suffering from that disease?

11

A. That may happen, yes.

12

Q. And in fact it does happen

13

in your experience?

14

A. Yes.

15

Q. And once again, Doctor, this

16

child was five months of age, four and a half months

17

of age at the time of death. In your experience is

18

it relatively common for endocardial fibroelastosis

19

to make its appearance at that age?

20

A. Yes, it is.

21

Q. And would you also agree with

22

me that it is a major cause of death, when it occurs

23

at that age?

24

A. Yes, and particularly if it

25

is associated with some other anomaly of the heart.



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Q. In this case it appears to have been associated with not only ventricle septal defects but also a hypoplastic right ventricle?

A. Yes.

Q. Now, would you please turn to Jordan Hines, do you have that chart?

A. Yes.

Q. Now I don't propose to ask you a great deal about Jordan Hines, I think my colleagues Mr. Solomon and Mr. Tobias may have some questions for you, but let me ask you briefly. As I understand it the best explanation you have for the death of Jordan Hines is sudden infant death syndrome, is that right?

A. Yes, I believe so.

Q. And that disease, or that syndrome is as its name indicates, something that happens in young babies quite suddenly and without apparent warning sometimes?

A. Yes.

Q. And is that also a disease, or a syndrome that is difficult to be absolutely certain about post mortem?

A. I think it may be, the opinion of that varies from group to group.



Rowe, cr.ex.
(Strathy)

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Q. Well certainly up until

3

recently one of the problems with sudden infant

4

death syndrome is that you could not be absolutely

5

sure, even after a post mortem, as to why the child

6

died, is that fair?

7

A. I think there are those who

8

take that position, yes.

9

Q. You have I gather, discussed

10

this case ---

11

THE COMMISSIONER: That is not a

12

total answer.

13

MR. STRATHY: No, that is a guarded

answer and that is fair enough.

14

Q. You have discussed this case

with Dr. ^{Becker}~~Barker~~, Dr. Rowe, is that right?

15

A. I have discussed it with

16

Dr. Bain.

17

Q. Dr. Bain, excuse me. Was it

18

Dr. Bain who you described as one of the world

19

experts on sudden infant death syndrome?

20

A. Dr. Bain is a world expert

21

on anything pediatric.

22

Q. I have really messed this up,

23

it was Dr. Becker you told me you had discussed it

24

with.

25



1
2
3 A. I didn't discuss it with
4 Dr. Becker, but I understand Dr. Becker to be a world
5 authority on the autopsy of sudden infant death
6 syndrome.

7 Q. And it was Dr. Becker's
8 view, at least if one looks at page 29 and 30 of the
9 chart record that sudden infant death syndrome was
10 at least one of the things that had to be considered.

11 A. Yes, that is so.

12 Q. Let me come back to it,
13 Doctor. Is it your view that the characteristics
14 of sudden infant death syndrome can be observed on
15 post mortem and can be diagnosed?

16 A. Yes.

17 Q. And do you say then that
18 there are certain characteristic signs of that
19 syndrome?

20 A. I think there are.

21 Q. And briefly can you tell us
22 what those are?

23 A. Well, there are changes
24 in the small blood vessels in the lung which are
25 felt to be an indication of the fact that these
babies have had hypoxia on more than one occasion
in the past, this is a secondary effect on the



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pulmonary vascular bed of the lungs.

Q. Changes in blood tissues
in the lung?

A. And blood vessels in the
lung.

Q. Yes.

A. Which is something you would
certainly not normally see in babies without heart
disease or this condition. Persistence of brown
fat, and again I warn you that I am not a world
authority on this at all.

Q. Right.

A. I am giving to you information
that I have learned from others.

Q. All right.

A. And there are changes in
certain elements in the brain and the brain stem
that are believed to be important, and I can't give
you all the details of that but they are felt
increasingly to be important in this condition in
the way that the brain controls respiration.



DD
BN/wb

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2 And there are signs of new blood tissue formation. That
3 is what is meant by hematopoiesis.

4 Q. I am sorry, where is that?

5 A. It is item (b), 1(b).

6 Q. On page 13 of the chart?

7 A. Page 30.

8 Q. Yes, page 30?

9 A. Yes.

10 Q. And I am sorry, you put
11 that in simpler terminology. What do you call it?

12 A. That means little pockets of
13 attempts on the part of the body to produce blood
14 elements in areas where they normally do not form.
15 I think that is the closest I can get to it.

16 Q. Anything else, then, that
17 would be considered to be signs or indications of
18 Sudden Infant Death Syndrome?

19 A. And the absence in a
20 patient who has a clinical history that is strongly
21 suggestive of anything else in the post mortem.

22 Q. Now, in this particular patient,
23 is it your view that the clinical history is strongly
24 suggestive of Sudden Infant Death Syndrome?

25 A. Yes, I think, in retrospect,
that is true. I think at the time there were other

*What about
the arrhythmia?*



DD2

1
2 thoughts about it, but when the full history became
3 apparent, I think that was the conclusion.

4 Q. And of the four clinical or
5 pathological signs of Sudden Infant Death Syndrome, we
6 see on page 30 there is reference to gliosis of the
7 dorsal vagal nuclei of the brain stem. Is that the
8 changes in the brain stem that you were referring to?

9 A. Well, I am not sure whether
10 those are the ones that the experts regard as the
11 appropriate ones or not, but I suspect they are.

12 Q. Then you have referred to the
13 hematopoiesis question. What about the fibrous thick-
14 ening of the pulmonary arteries? Is that what you were
15 referring to as changes in the blood vessels in the
16 lungs?

17 A. Yes.

18 Q. And then lastly, the brown
19 fat; is that right?

20 A. Yes, those are the things that
21 I think, at least as I understand it, are the important
22 issues.

23 Q. Speaking of Sudden Infant
24 Death Syndrome and speaking of this child, Doctor, are
25 you satisfied or as satisfied as you can ever be with
this syndrome, that this child died of it but for the



DD3

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digoxin levels post mortem?

A. Yes.

Q. Again, what troubles you in this particular child is the post mortem "digoxin levels" when the child was not prescribed digoxin; is that fair?

A. Yes. You know, I have to add that that was not -- my view at the time, at least our view at the time was that there were other explanations. We thought this might be some viral problem or something in the heart muscle and it is later that this became apparent.

Q. Later that the digoxin question became apparent?

A. No, later -- well, later that the digoxin question and later that the question about Sudden Infant Death became apparent.

Q. So was it only after receipt of the autopsy report that you are saying Sudden Infant Death became apparent?

A. I think to others it may not have been so inapparent, but to us it was.

Q. In other words, others may have thought SIDS was an explanation at the time?

A. Yes.



DD4

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Q. But after you received the autopsy report it became a credible explanation to you as well?

A. Yes.

Q. All right. Now, can I turn to Kevin Pacsai, please?

THE COMMISSIONER: Pages one and two are electrocardiograms of that child and the rest of them. Are they abnormal in some way or are they normal? Pacsai was one with no heart defect or no apparent heart defect. Do they appear to be normal? They seem to have longer dips of, that would be the QRS dips.

THE WITNESS: This is from a monitor, I would think.

THE COMMISSIONER: Is that not an electrocardiogram?

THE WITNESS: Yes, it is an electrocardiogram, but the lead system may be different from that we employ on a regular tracing.

There is some rate variation in the pieces that I see, if this is the record indeed of the patient. I assume it is; it does not have a name on it. There is a P and a QRS and a T wave. There is some rate change as you see on the areas seven and



DD 5

1
2
3 eight. I guess in most of the records you see
4 some slowing, some more rapid rate, but I cannot see
5 any other evidence of abnormality.

6 MR. STRATHY: you have already told
7 us in relation to Kevin Pacsai that you at the time
8 had no sufficient explanation for the death and that
9 you are troubled by the ante mortem digoxin level and
10 by the post mortem digoxin level. I would like to
11 refer you to the record at page 67, at the bottom of
12 the page, and there is a note there by, I think you
13 mentioned Dr. Costigan as being the author of that
14 note, where he said, How did K plus, which I
15 understand is potassium, get from 3.7 to 7.7 in less
16 than 12 hours without any having been given? I
17 wonder if you can help us, Doctor, as to whether you
18 have an explanation as to how that potassium level
19 got up?

20 A. Well, I am not sure how the
21 potassium level got up. Whether this was in relation
22 to the arrest and so on, I do not know; I have no
23 idea.

24 Q. Certainly, you would not expect
25 the potassium to rise during that period from 3.7 to
26 7.7 if none had been given?

27 A. Well, I'm not sure of that.



1
2 I do not know whether there could not be some changes
3 in potassium under conditions in which -- I think this
4 follows the initial arrest, does it not?

5 Q. Yes, it is my understanding
6 that that 7.7 was taken during the arrest.

7 A. During the second arrest.

8 Q. Yes.

9 A. Yes, well, I think there is
10 a whole lot that has gone in between there and I am
11 not quite sure that I know whether -- one of the
12 explanations might be that something was administered.
13 Another explanation might be that it was the result
14 of changes in the electrolyte balance that are related
15 to the arrest.

16 Q. So at least at the present, you
17 are simply not able to give an explanation for that?

18 A. No, I am not. There may be
19 others who can.

20 Q. On that same page, Doctor, just
21 while we are on the subject of the arrest, page 67
22 about five or six lines up from the bottom, there is
23 a reference to what was going on it seems during the
24 arrest, and I cannot fully read it but it looks as
25 though adrenaline was one of the drugs that was given;
is that right? Do you see that reference at the



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end of the line? It looks like dopamine and --

A. Dopamine and adrenaline, yes.

Q. Dopamine and adrenaline. And I understand adrenaline is a drug that is commonly given during cardiac arrests?

A. It is.

Q. And commonly given to children as well as adults?

A. Yes.

Q. And it has some sort of direct activity on the heart?

A. Yes.

Q. And am I correct that one of the other names, perhaps a trade name or a brand name for adrenaline is epinephrine?

A. Epinephrine is the same.

Q. Is that simply a trade name?

A. I am not sure of that. I think that is a difference between North America and the UK.

Q. In any event, epinephrine would refer to adrenaline if we saw the name used?

A. Yes, it would acceptable as interchangeable.

Q. And it is my understanding, Doctor, that adrenaline was certainly available or



1
2 epinephrine was certainly available in Wards 4A and
3 4B during this particular period we are talking about
4 without having to be locked up?

5 A. Yes, I would imagine that to
6 be the case. I do not know for sure, but I would
7 think so because it would be on every resuscitation
8 cart.

9 Q. It would be something commonly
10 kept on resuscitation carts?

11 A. Yes.

12 Q. And it would not be a medication
13 that would be treated as a narcotic and would have to
14 be locked up?

15 A. No.

16 Q. Would you agree that it was
17 quite likely that adrenaline or epinephrine would have
18 been kept in the medication rooms on 4A and 4B during
19 this time?

20 A. I am not sure but I would be
21 terribly surprised if it were not.

22 Q. If it was not?

23 A. Yes.

24 Q. In addition, of course, as we
25 know, digoxin was kept in the medication rooms during
that period too?



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A. Yes.

3

Q. Incidentally, it was adrenaline

4

or epinephrine that was involved in the medication

5

mix-up that occurred on the 7th floor; is that right,

6

where a number of babies apparently received

7

epinephrine instead of Vitamin E?

8

A. Yes, a form of that drug. I

9

am not quite sure which form it was.

10

Q. Thank you. Now, Doctor, the

11

death of Baby Pacsai, you indicated that one of the

12

things that you considered at the time of his death,

13

I believe, was the possibility of some accidental

14

administration of digoxin. Do you recall your evidence

15

A. I do not know that we said that

16

at the time, or I said that at the time of the death.

17

Q. Well, is it something that

18

you considered in retrospect, looking at this

19

A. I think that we did think that

20

later, yes.

21

Q. And by later, when do you

22

mean?

23

A. Well, when we learned about

24

the level.

25



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Rowe
cr.ex. (Strathy)

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Q. And do you recall when it was
that you learned about Baby Pacsai's digoxin level?

- - - -



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A. We learned about that on the, I think it was the 18th of March. I'm not sure, I would have to check what my recollection was but I believe it was the Wednesday after the death of the patient. I think that was the 18th.

Q. And when you say we, or we considered the possibility of accidental administration, who is the "we" to whom you are referring?

A. Well, I can't recall whether Dr. Carver and Dr. Costigan felt that way about it or not, but Dr. Fowler and I did.

Q. So, you certainly had discussed it at that point with Drs. Carver, Costigan and Fowler?

A. We had discussed this whole question because they asked us when the reading became known to communicate that and to do certain things and I can't recall whether they specifically said this is an overdose issue, intentional or not, but I think Dr. Fowler and I felt that was possible, very possible.

Q. Could you tell us please how you and Dr. Fowler thought there might have been an accidental administration?

A. Well, the question arose as to whether there might have been a mistake in the administration of the drug.



EE.2

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Q. Do you ^{mean} remember in the course of

3

the routine therapeutic administration?

4

A. Yes.

5

Q. Yes.

6

A. Or there might have been some-

7

thing in the strength of the preparation that was off
in a batch or something like that.

8

Q. Yes. Did you consider anything

9

else as a way of accidental administration at the time?

10

A. I don't know whether we thought

11

at that time as a possibility that it might have been

12

administered during resuscitation, but certainly that

13

is one question that would be a reasonable one to raise.

14

Q. You mean it would be reasonable

15

to raise the possibility that during the resuscitation

16

efforts itself somehow digoxin got administered

17

instead of something else?

18

A. Yes.

19

Q. Is that what you mean?

20

A. Well, you know, we weren't

21

thinking along those lines at the time of all these
possibilities. I mean, that is something that has
emerged within a week or so I guess of the event.

22

Q. Well, let me ask you though in

23

retrospect, looking back, and perhaps not trying to

24

25



EE.3

1
2 reconstruct what you were thinking at the time, but
3 if one is looking at accidental administration as a
4 possibility, would you agree that one of these
5 scenarios one might look at would be the possibility
6 of that administration occurring accidentally at the
7 time of an arrest?

8 A. Yes, it is one of the possibilities.

9 Q All right. Now, Doctor, you
10 indicated that after Baby Pacsai died, his death was
11 reported to the coroner, and I believe that you
12 indicated that the death was discussed with the
13 doctors and nurses on the ward. Do you recall that?

14 A. I recall that the case was
15 reported to the coroner.

16 Q Well, my recollection of your
17 evidence was that you discussed the death with the
18 doctors and the nurses on the ward and what I wanted
19 to suggest to you was that it was well known by the
20 doctors and the nurses on the ward after Baby Pacsai's
21 death that the death had been reported to the coroner
22 and that subsequently there was a question about his
23 digoxin levels. Would you accept that as a fact?

24 A. That there was a question about
25 his digoxin levels?

Q No, that the people on the ward,



EE.4

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the doctors and the nurses on the ward after Pacsai's death, first of all knew that the death had been reported to the coroner and, secondly, after you got the digoxin levels, those people on the ward knew that there was a concern about Baby Pacsai's digoxin levels?

A. Yes, because we undertook an investigation on the ward immediately after that point in time.

Q. That is immediately after becoming aware of the digoxin levels?

A. Yes.

Q. And I'm sorry to go back on this but was that the Wednesday of the week following?

A. I am not sure what day it started, whether it was a Wednesday or a Thursday, but it certainly took place over those two days because the report was put forward by Dr. Fowler on the Friday the 20th. The date of his report I think was the 20th, so, he must have been working with the nurses on the floor over this question of administration and the appropriateness of the concentration of the drug by chemically and so on, pharmacologically, over that period of two days.

Q. So certainly by Friday the 20th,



EE.5

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you would agree with me that any nurse working on that ward would have been aware that something was going on about Baby Pacsai's death and that that something involved digoxin?

A. I would expect so, yes.

Q. Thank you.

THE COMMISSIONER: Well, the first question that he asked, and I don't know whether you answered that one, were the people on the ward aware that it had been reported to the coroner?

MR. PERCIVAL: Mr. Commissioner, I'm sorry, we can't hear you, sir.

THE COMMISSIONER: Well, I just asked if the people on the ward would be aware that it had been reported to the coroner? You did say that you considered that because of Dr. Fowler's activities that they would be aware that there was a problem about digoxin. Did I understand you correctly to state at that time?

THE WITNESS: Yes.

THE COMMISSIONER: Had been aware at least by Friday?

THE WITNESS: By the Friday, the 20th, yes, of course, at the latest.

THE COMMISSIONER: Would they be aware of the report to the coroner?



EE.6

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THE WITNESS: I'm not sure when they would be aware of that, but if we report a case to the coroner that information is not usually reserved by the cardiologists, it is usually communicated to everybody involved. I don't know whether that was done, but it usually is. I mean, the nurses know pretty much what we are going to decide about that point every time.

MR. STRATHY: Mr. Commissioner, is this an appropriate time?

THE COMMISSIONER: Yes, all right, we will break for 20 minutes.

--- Short recess

--- Upon resuming:

THE COMMISSIONER: Just as a warning, I may be asking for a meeting of funded counsel some time before the close of business tomorrow. I don't know, it depends on whether or not documents are ready. So, I just mention it.

MR. TOBIAS: I am having difficulty hearing you, Mr. Commissioner.

THE COMMISSIONER: I said a meeting of funded counsel some time around the close of business tomorrow, and I'm just giving you time to think about that because if it turns out it is



EE.7

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inconvenient or if it turns out I am not ready we
won't have it.

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Yes, all right, Mr. Strathy?

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MR. STRATHY: Thank you.

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Q Doctor, could you pick up the
chart please of Kristin Inwood, which I think is the
next one in that pile.

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You may not need it, but do you have
it in front of you, Doctor?

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A. Yes, I do.

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Q This was again a child on Exhibit
No. 127 which you have classified as being in the
lower risk group.

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I wanted to suggest to you that while
you may put that child in the group for purposes of
this review that in fact she should be at the higher
end of that group if not in a high risk group, and I
want to read to you what Dr. Bain in his report said
about Kristin Inwood, and I'm referring to page 19
of Dr. Bain's report, which you probably won't have
in front of you, Doctor?

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A. No.

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Q I will read it to you. That is
Exhibit No. 48, Mr. Commissioner.

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THE COMMISSIONER: Page 19, did you say?



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MR. STRATHY: Page 19 of Dr. Bain's report, and if I'm not mistaken it is Exhibit 48.

Q Doctor, Dr. Bain summarizes as follows:

"This baby is the result of a pregnancy possibly complicated by maternal rubella. She was small for gestational age and had a small head."

Now, just stopping there, I take it you would agree that being small for gestational age, the fact of the small head and the possibility of maternal rubella are all things that would put that child at high risk?

A Yes, they would.

Q He goes on:

"She had congenital heart disease, coarctation of the aorta, moderate severity, and was in heart failure on the first day of life. The failure did not respond to vigorous medical therapy, her death followed a cardiac arrest following a brief episode of tachycardia, followed by bradycardia. At post mortem there was congestive heart failure and the heart was twice the normal size and weight."



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And stopping there, is that heart being twice the normal size and weight, is that a result of congestive heart failure?

A. It is a combination of the heart failure and the underlying malformation itself.

THE COMMISSIONER: I just don't understand how this could be a failure. Was in heart failure on the first day of life and the failure did not respond to vigorous medical therapy.

MR. STRATHY: Q. Well, I think, if I may, Doctor, what this seems to indicate is that she was in congestive heart failure, that is, she was displaying the symptoms of congestive heart failure.

THE COMMISSIONER: Oh, I see.

MR. STRATHY: Q. The doctors treating her administered vigorous medical therapy, I would assume with diuretics and digoxin, and there was not a satisfactory response. Is that how you would interpret that?

A. That's the way it was.

THE COMMISSIONER: Yes, she lived for several days, so, there must have been some kind of response. But it was just that the heart failure continued, was that it?

THE WITNESS: Yes, that's it.



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MR. STRATHY: Q Well, she was born on the 23rd of February, she was admitted to the Hospital on the 11th of March and she died on the 13th of March.

THE COMMISSIONER: The thing that is concerning me is the first day of life. I take it that that - does that mean what it says?

THE WITNESS: Yes, I think there were symptoms that developed by 12 hours of age.

THE COMMISSIONER: Yes, all right.

MR. STRATHY: Q And that can certainly happen, Doctor, in your experience, that babies can display ^{congestive} ~~congenital~~ heart failure from the first day of life?

A. Yes.

Q Then going on with Dr. Bain, he says:

"There were areas of focal myocardial necrosis which could well have triggered the arrhythmia. In addition, there was evidence of massive amniotic squamas aspiration in all parts of the lungs and although this appeared to be resolving there was no question but that it would contribute to hypoxia."



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Do I understand that that means that
the baby aspirated, breathed amniotic fluid at the
time of birth?

A. Yes.

Q. And that would lead to hypoxia
or oxygen starvation?

A. Well, I'm not sure how much that
would have interfered with things because the baby,
as I read it, is not grossly hypoxic, but again, there
is the question of determining whether there wasn't
some inference from that fact.

Q. Well, it may be a factor, having
aspirated amniotic fluid may well be a factor in
adding to the extent to which the child was at risk?

A. I think that would be fair.

Q. And then, Dr. Bain goes on,
finally:

"The head was small, had not grown
since birth, suggesting that the brain
might not be growing. This could be
evidence of maternal rubella syndrome
as another contributing factor."

As we know, measles in the mother may
well contribute to serious problems in the child,
is that so?



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A. That is so. I'm not sure how definite that diagnosis turned out to be in the end.

Q But certainly if that was the fact, if the brain was not growing, that would certainly be a serious complicating factor?

A. Yes.

Q And then Dr. Bain goes on:

"There is no question but this child was at extremely high risk of dying and in the manner reported."

Now, would you agree with me that in light of Dr. Bain's views, and perhaps in light of your own views, you would certainly put this child at the higher end of that lower risk category?

A. Yes.

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A. Yes, I would. A baby who has coarctation of the aorta and failure at that age is in the sort of 30 per cent range anyway, but I would agree that other factors might have put it a little bit higher.

Q. Would you go so far as to agree with me that there might be some legitimate question as to whether you should not categorize Baby Inwood as being in the higher risk area?

A. I think that could be debated, yes. I would still keep it in the high end of the low.

Q. In any event, whatever the risk condition you put her in prior to her death, and I think you would agree that after the autopsy, and but for the digoxin levels, you would be entirely satisfied that there was sufficient medical reasons for her death?

A. Oh, yes.

Q. And then what troubles you in this case, as I gather it has in others, is the evidence on digoxin, and I put "evidence" and "digoxin" in quotes for the time being at least until we have had some further evidence about it, but as I understand it there is a suggestion that this child



displayed levels of 491 nanograms per millilitre in sagittal sinus blood on autopsy, is that your understanding?

A. I'm not exactly sure what the values in the area was, but I am aware there was a question raised about those levels and that is why that baby goes into that category.

Q. I think I can tell you with some certainty, Doctor, that that is the evidence which I understand was led at the Preliminary Hearing in relation to this child, that is 491 nanograms per millilitre in blood in the sagittal sinus.

First of all, where is the sagittal sinus?

A. The sagittal sinus is a large ^ovenous channel in the brain between the hemispheres of the brain.

Q. Do you mind just pointing to it, is there a point? Right at the top of the head in other words?

A. Yes.

Q. Running down the middle of the head?

A. Yes.

Q. Is there some reason why on



1
2 post mortem one would take blood from the sagittal
3 sinus?

4 A. In a baby you have access to
5 it fairly simply through to the fontanels.

6 Q. This is through the fontanels?

7 A. Yes.

8 Q. The fontanels are the soft
9 spots in the top of the baby's head?

10 A. Yes.

11 Q. Is the sagittal sinus a
12 vein in effect?

13 A. It is a large vein, yes.

14 Q. So to take that sample post
15 mortem you would simply insert a syringe and withdraw
16 a portion of blood?

17 A. Yes, I would think so.

18 Q. Now, Doctor, we have had
19 marked as exhibits specimens of the digoxin ampoules,
20 which as I understand it were in use in Wards 4A and
21 4B during the period in question. We have heard
22 about the elixir being used and I don't want to
23 refer to that, I want to refer to the ampoules.

24 First of all, there are two kinds,
25 it appears one is referred to at least as pediatric
ampoules, those are the ones I have in my hand.



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A. Yes.

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Q. And I am told that these

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are 1 millilitre ampoules, and that the concentration
5 is .05 milligrams per millilitre.

6

A. That is right.

7

Q. Do you recognize that as

8

the pediatric digoxin ampoules that were in use in
the Hospital at that time?

9

A. Yes.

10

Q. And then the other one,

11

Doctor, is the adult ampoule, which as I understand
12 it is twice the size of it, a 2 millilitre ampoule
13 and that the strength in this case is .25 milligrams
14 per millilitre.

15

A. Yes.

16

Q. Do you recognize that as

17

the adult ampoule that was in effect in the hospital
at that time?

18

A. Yes.

19

Q. And in use in the ward?

20

A. Yes, I believe it was.

21

Q. So Mr. Commissioner, we have

22

the adult being twice as large as the pediatric, and
as well as being twice as large as the pediatric,
23 the adult strength of the digoxin is five times more
24

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2 in the adult as in the pediatric, it is .25 as opposed
3 to .05.

4 A. Yes.

5 Q. Is that right?

6 A. That is right.

7 Q. So that one of the 2 milli-
8 litre adult ampoules contains 10 times as much
9 digoxin as one of the 1 millilitre pediatric ampoules,
10 is that right?

11 A. Yes.

12 Q. Now, Doctor, I simply want
13 to put this to you. There was evidence, and I
14 believe it was either at the Preliminary or in
15 Dr. Hastreiter's report to the effect that to produce
16 that level of 491 nanograms per millilitre in Baby
17 Inwood's blood would have required the same amount
18 of digoxin as there would be in 200 of these 1 milli-
19 litre ampoules, are you familiar with that evidence,
20 or not?

21 A. No, I am not.

22 Q. Well assuming that that
23 is the evidence, that it would take 200 of these
24 little ampoules, little pediatric ampoules to create
25 that level, would you not agree with me that that is
a fairly unlikely scenario for this drug to have been



1
2 administered to Baby Inwood?

3 A. If that assumption is correct.

4 Q. And just for the assistance
5 of all of us, how big a syringe would it take to
6 administer, to fill 200 millilitres of those pediatric
7 ampoules, obviously a 200-millilitre syringe, is that
8 right?

9 A. Yes, I don't know of any
10 such instrument except for veterinary medicine
11 perhaps.

12 Q. It is not something that you
13 would have around the cardiac wards at the hospital,
14 is it?

15 A. No, it is not.

16 Q. Now then, according to
17 Dr. Hastreiter the same effect may have been produced
18 by administering 20 of those adult ampoules. In
19 other words if they are 10 times as strong it would
20 take one-tenth of the number, so you would have 20
21 2 millilitre ampoules of the adult digoxin to create
22 that effect of 491. Perhaps you would agree with
23 me that again that is perhaps somewhat unlikely as
24 an explanation to have to get a whole 20 of these
25 ampoules, break them all open and fill the syringe
with them?



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A. Yes.

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Q. You would have to go through

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quite an exercise in order to fill up a syringe with

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20 of those ampoules, wouldn't you?

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A. Yes, you would indeed.

7

Q. In fact just to fill a

8

syringe with one of these ampoules, you have to break

9

the top of the ampoule?

10

A. Yes.

11

Q. There is a little gold line,

12

is that where you break it?

13

A. Yes.

14

Q. And then you insert the

syringe in it?

15

A. Yes.

16

Q. Fill up the syringe?

17

A. Yes.

18

Q. And throw out the ampoule?

19

A. Right.

20

THE COMMISSIONER: That is the

normal way of doing it, is it, Doctor?

21

THE WITNESS: Yes.

22

MR. STRATHY: Q. There is no other

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way, Doctor, is there to get digoxin out of the

24

ampoule?

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A. No, you have to break the
top.

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Q. And draw it out with a
syringe?

6

A. Yes.

7

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Q. It would be difficult to
shake it out or anything like that?

9

A. Yes, it will come out if you
shake it but ---

10

11

Q. You won't be able to fill the
syringe?

12

13

A. No, you wouldn't be able to
collect it.

14

15

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Q. So you would take 20 of these
ampoules and you would have to fill a syringe with
them and that would be a 40 millilitre syringe, is
that right?

17

A. Yes, 40 or 50 millilitre.

18

19

Q. That is something you would
have around the hospital, is it not?

20

21

A. You would have those size
syringes, I don't know how many of them they have on
the ward.

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Q. I wouldn't think it was
something you would normally use in the pediatric
ward?

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A. I am not sure, I can't recall if they were, so you would really have to ask the nursing staff.

Q. Can you give us an idea how big a 40 or 50 cc syringe would be?

MR. LAMEK: Not cc, ml.

MR. STRATHY: Q. Ml, is that the same?

A. Yes.

Q. Can you give us ---

A. It is about that size, long.

Q. You are indicating about 6 or 7 inches long?

A. Yes.

Q. How long?

A. About 8 inches long and about that round. (indicating)

Q. And you are showing perhaps 1½ inches in diameter, 1 inch diameter?

A. 2 inch diameter, maybe.

Q. Not exactly something you can hide too easily if it was filled up with something, is it?

A. No.



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Q. Doctor, I wonder if you could help us, would you be able to bring for us tomorrow a 40 or 50 cc syringe?

A. I will be glad to try.

Q. Thank you. Don't put it in your pocket.

A. As long as you can assure my safe passage along University Avenue without being arrested.

MR. STRATHY: We will leave that to the Commissioner.

THE COMMISSIONER: No response at all any more. I won't say.

MR. STRATHY: Q. Do you think you could also bring ---

THE COMMISSIONER: Ask Mr. Percival. He might help us.

MR. STRATHY: Q. Do you think you could also bring with you, Doctor, specimens of the syringes that would normally be used in the hospital in the cardiac wards?

A. I can certainly try.

Q. We would appreciate that.

THE COMMISSIONER: While you are on the subject are you going to go into the other exhibits,



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what the ^{elixir}~~mix~~ is?

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MR. STRATHY: I can do that right

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now.

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THE COMMISSIONER: Is it more

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concentrated or less concentrated, what can you tell
us allabout that?

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MR. STRATHY: I think I can go into

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that.

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Q. Doctor, the Commissioner, has

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asked about the elixir and I wonder if you can

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identify this bottle referred to as lanoxin,

12

l-a-n-o-x-i-n, digoxin pediatric elixir, can you

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identify that as the digoxin elixir that was in

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use in the wards at that time?

15

A. I think it was. The bottle

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did change from 60 ml bottle to 100, but I think
probably was the one in use at the time.

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Q. And this is the 100 ml?

18

A. Yes.

19

Q. And it appears that the

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strength of digoxin in this is .05 milligrams?

21

A. Millilitres.

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Q. Per millilitre, and that is

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the same strength as in the pediatric ampoules, is
that right?

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A. Yes, that is so.

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Q. Now, it also indicates that

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this elixir contains some measure of alcohol?

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A. Yes.

6

Q. Is that right?

7

A. Yes.

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Q. Can you tell me what proportion

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that is?

A. It is 10 per cent volume.

10

Q. And I take it the purpose of

11

that alcohol is to among other things, dissolve the

12

contents?

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A. Yes, it is a vehicle for the

14

drug, yes.

15

Q. Now this elixir, as I under-

16

stand it, would be administered routinely in the wards

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by the nurses in an oral fashion, is that right?

18

A. Yes.

19

Q. And it comes with a dropper,

20

in your experience was that the usual way of adminis-
tering digoxin elixir at the time in question?

21

A. No, I think it was given by

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syringe, because the syringe is a more accurate

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method of doing it, a small tuberculin syringe.

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Q. Can you try and get your hands

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on one of those to bring tomorrow?

A. Yes.

Q. And I gather, Doctor, that when the nurses were administering digoxin elixir by syringe it was really quite small quantities of this that they would administer?

A. Yes.

Q. Well, we'll see tomorrow, but it is a pretty tiny syringe, isn't it?

A. Yes, it is.

Q. And in what circumstances would the nurses use the ampoules rather than the elixir?



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In general, the objective is to get babies who are being treated with digoxin on to oral medication as soon as possible. But when they are very sick and not able to swallow well or feed well, then it has to be given intravenously and then it is administered in that solution in the ampule.

THE COMMISSIONER: This ---

THE WITNESS: That is never given intravenously. That is only given by mouth.

THE COMMISSIONER: But the ampule is given intravenously?

THE WITNESS: The ampule is given intravenously.

MR. STRATHY: Q And is that ampule, contents of that ampule injected in effect directly into the baby intravenously?

A. It is given through intravenous -- through the intravenous drip mechanism, and I am not sure exactly what the technique is used on the ward, but it is usually given by a physician injecting directly into the intravenous line.

THE COMMISSIONER: And the elixir is not. Can you tell me, and perhaps we are going into this, are they the same concentration?

THE WITNESS: Yes, they are the same concentration.



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THE COMMISSIONER: So it would take the same kind of syringe if you were going to inject it by syringe either into the veins or into the mouth?

THE WITNESS: You could. They may very well use that. I am not exactly sure which syringe they use for the intravenous because I do not give it, but we go through this oral business a great deal with patients in the office, you see.

THE COMMISSIONER: But a syringe filled with the elixir and a syringe filled with the ampule, a paediatric ampule would be of the same ---

THE WITNESS: They would look different. The syringe, the elixir is a green, lime-coloured substance.

THE COMMISSIONER: That might well be, but would they be of the same concentration?

THE WITNESS: Yes, they would be of the same concentration.

THE COMMISSIONER: So it would take the same kind of syringe if you were using a syringe for the elixir as it would for the other, assuming that you were going to -- presumably this is never given intravenously?

THE WITNESS: No.

THE COMMISSIONER: It might be given by syringe orally?



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THE WITNESS: Orally, yes.

MR. STRATHY: Q Well, if I may, Doctor, just ask you, would you agree with me that it is pretty hard to conceive of someone giving 40 cc's of the elixir to a child orally through a syringe?

A. Yes.

THE COMMISSIONER: But it would be no more difficult than -- well, of course obviously, because the syringe takes it out of the ampule and the syringewould take it out of the bottle.

MR. STRATHY: Q It might be easier to fill out of the bottle, but I would have thought to administer to an infant, especially a sick infant, 40 cc's of milk or apple juice through a syringe would be an unlikely task?

A. Yes.

Q Orally?

A. Yes. It would be like giving a whole feed.

Q In one fell swoop. Incidentally, I understand that digoxin is never given the way most of us would get shots, that is, intramuscularly?

A. It used to be given intramuscularly but it is not regarded any longer as an appropriate route, but for many years we gave it intramuscularly.



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Q. To infants as well?

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A. Yes.

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Q. And why is it no longer regarded

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as ---

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A. Well, the absorption is very

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irregular and uncertain, and it is much better to give

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it in a quantity into a route where you know it is

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going to be utilized in a specific and predictable way.

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Q. I am not sure if you said this,

11

but there was something in the back of my mind that

12

giving digoxin intramuscularly created some type of
irritation or inflammation?

13

A. Well, it is an irritant because

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it has got -- you are injecting into tissues, so that

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it is not quite the same thing as doing it into the
stomach or into a vein. It has a reaction in tissue.

16

Q. We started off this discussion

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in looking at the chart of Kristin Inwood, and if I

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can ask you to look at page 62 of that chart, about

19

three-quarters of the way down the page, there is a

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note by one of the physicians, I think, or is that one

21

of the nurses, do you know? It looks like William --

22

A. I think it is Mountstephen.

23

Q. Mountstephen?

24

A. Yes. He is a physician.

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Q And that indicates, does it not,
on the third line, that intravenous adrenaline was given
to the child?

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A. Yes.

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Q As part of the resuscitation?

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A. Yes.

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Q Now, it was my understanding,
Doctor, and I will perhaps come to cardiac arrests at
a future time, but it was my understanding that at
the time of a cardiac arrest it was the established
practice to make up a list of the medication received
during the arrest by the child with the time of
administration and the dosages. Is that your under-
standing too?

15

A. Yes, it is.

16

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Q I do not see that in this
particular chart. I may just have missed it, but I
have looked through it and I did not see any record
of that kind. I would have thought that you would
expect to see that yourself in this type of chart?

20

A. Yes, I would.

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Q In fact, is it not the case that
one nurse is generally assigned at the time of arrest
to do simply the recording of the medications and the
treatment that takes place at the time of the arrest



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and noting the times that those occurred?

A. That is described in the Manual of Operations, correct.

Q. It is standard procedure to do that?

A. Yes.

Q. Well, I wonder if I can simply put on the record the request that a search be made for that if it is in existence.

I suppose, Doctor, you would expect to find it in the chart, though, or in the record?

A. Yes, you would.

Q. The other thing that did not appear in the chart was the form that has been filed as an exhibit now, speaking of the medication error that occurred in the case of Kristin Inwood, and again, I would have thought that that would be something that should have been a part of her chart?

A. I think, as I understand it, there would have been an incident report.

Q. Yes.

A. And the incident report does not stay in the Hospital record, as I understand it.

Q. What is your understanding as to what happens to it?



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A. Well, on the incident report there is an indication of the distribution at the top of the report, and it says that copies, various coloured copies go to various areas. One goes into the patient's chart but medical records, the patient's chart, Mr. Commissioner, it says here.

Q. I am sorry?

A. It says it goes into the patient's chart but medical records remove that from the Hospital record and send it to the Hospital secretary.

Q. Do you have the form; do you have a sample of it?

A. I have a form, but I have another form. Let me give you another one. This is of somebody else.

Q. So you indicate at the top of this, the white copy goes to patient charts and then a bracket, medical records to remove and send to Hospital secretary. So what you are telling us is that you would not expect to find it in the chart itself?

A. You might find it in the chart during the time the patient is alive or in hospital, but at the time the record goes to the Medical Records Department, as I understand it, that incident report



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is removed at that point and kept in administration.

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Q Thank you.

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MR. ROLAND: Mr. Commissioner, the witness has been referring I think to Exhibit 113A, which was filed some time ago. The reference that he makes to the copies is at the top of that Form 113A, that is, there are four copies of varying colours.

MR. STRATHY: Yes, I think that is so, Mr. Commissioner. He may not have been referring to that precise document, but he was referring to an exact same form.

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THE COMMISSIONER: I do not know whether anything turns on this, but it does seem odd that one copy goes to the Hospital secretary, one goes into the medical records and then is removed and sent to the Hospital secretary.

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MR. STRATHY: Q Perhaps Dr. Rowe can help us as to why it is sent to the Hospital secretary, do you know?

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A. No.

Q Presumably it stays with the record on the ward so that people will know about it as the child is being treated?

A. Yes.

Q But after the child is no longer



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being treated, for whatever reason, the record goes into some form of storage and for whatever reason you cannot help us, the record of the medication error goes off to the Hospital secretary?

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A. Yes. I am not sure whether that is the current practice, but that is what is on the forms and I have been under the impression that that is what happens.

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Q. All right. I wonder if I could ask you to look at the records for Charlon Gardner. Doctor, with respect to Charlon Gardner, which you have categorized as a high risk death, I simply want to put to you the opinion of Dr. Hastreiter and ask you whether you would agree with his opinion. In testifying at the Preliminary Inquiry at Volume 34, page 11 of his evidence, Dr. Hastreiter had this to say. He was asked about four babies: Bilodeau, Fazio, Thomas and Gardner, and he said this:

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"I felt that these four babies were either extremely sick and death was imminent or that they had such terrible heart defects that they would have died at that particular point in time."

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May I take it that insofar as Charlon Gardner is concerned, you would agree with that assessment? First



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of all, let me ask you was death imminent in the case
of Charlon Gardner?

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A.

I think that that would be a
fair statement. This baby had a terribly precarious
situation, and I suppose whether you say it is
imminent or whether it is going to be tomorrow or the
next day is a bit more difficult for me to say, but
I think that clearly the baby was in a hazardous
state.

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Q. Would you use the description that she had a terrible heart defect. That's one of the words that Dr. Hastreiter used?

A. Yes, our classification agrees with that.

Q. And then I'm going to read to you, with the permission of the Commissioner, and this hasn't been filed as an exhibit, it is Dr. Hastreiter's report and has been supplied to us and I'm reading from page 170. Dr. Hastreiter had a summary about this baby and said:

"In this death -- "

THE COMMISSIONER: Page again, I'm sorry.

MR. STRATHY: I'm sorry, page 170. And it is simply, and I know it has not been marked yet as an exhibit but it is Dr. Hastreiter's report apparently:

"This infant death was anticipated because of the extreme hypoxemia. Evidently, surgery was felt not to be possible. Digoxin toxicity is unlikely."

Do you agree with that overall assessment?



cr.ex. (Strathy)

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A. Well, I don't think there is any doubt about the severity of the malformation in this baby. I mean, I may not put it in the same words as Dr. Hastreiter, but I think I would agree with the implication.

Q. Is the hypoxemia, which he spells h-y-p-o-x-e-m-i-a, is that the same as hypoxia?

A. Yes. Hypoxemia means that the blood is lacking in oxygen. Hypoxia may be more generally applied to tissues as well.

Q. Now, again, may I ask you to turn next to Allana Miller.

Mr. Commissioner, I'm going to be a little while with Allana Miller and I don't mind either starting it now, as long as I can finish, or else starting it tomorrow morning, but I would prefer to deal with the child in one go.

THE COMMISSIONER: Can you give us some indication?

MR. STRATHY: I think I might be about 15 minutes.

THE COMMISSIONER: No, I meant...

MR. STRATHY: Oh, how much in total?

THE COMMISSIONER: Yes.



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MR. STRATHY: Well, I would expect that I would finish, I would hope to be finished sort of mid-morning tomorrow by the break in the morning.

THE COMMISSIONER: Well, I am good for 15 minutes, I don't know whether you are.

MR. STRATHY: I'm fine. That's fine.

THE COMMISSIONER: As long as there is no case of abuse or anything like that.

MR. STRATHY: It may be an incentive to cut it short but I don't mind starting, that's fine.

THE COMMISSIONER: Well, if you can finish it in 15 minutes, I don't think that would disturb us too much.

MR. STRATHY: Fine.

Q. Doctor, can you take the chart, please, of Baby Miller. Now, Doctor, Baby Miller died at the early morning of March 21st, 1981, and, again, I think you would agree with me that by that point certainly everybody, nurses and doctors alike, on the cardiac wards at the hospital, knew about Baby Pacsai's death, knew that there was a concern about digoxin in Baby Pacsai's post mortem serum and in all likelihood knew that a coroner's inquest was underway, or at least the coroner had been advised?



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A. Yes.

Q. And this particular baby, you have classified on Exhibit 127 as a high risk, and I'm just going to indicate to you that in his summary at page 24, Dr. Bain indicated that:

"At post mortem her heart was more than twice normal size and she had severe heart failure. Certainly, there was sufficient cause for cardiac arrest and death but, of course, the allegedly high (toxic) levels of digoxin must be explained."

Would you agree with that, that is, that there was sufficient cause for cardiac arrest and death but that in your view the allegedly high levels of digoxin need explanation?

A. Yes.

Q. And but for those, "levels of digoxin", you would be satisfied with the clinical and medical explanation for her death?

A. Yes.

Q. And obviously those levels have troubled you in the case of Baby Miller, as they have in the case of other babies?

A. Yes.



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Q. And obviously, you have had a good, deep view of thought on your own part as to how they might be explained, those levels?

A. Yes.

Q. And I want to refer you back to your examination by Mr. Lamek at Volume 18 of your transcript, page 3233, where you were asked about the levels in Baby Miller. You probably don't have the transcript in front of you, do you, Docotor?

A. No, I don't.

Q. Well, let me read it to you, if Mr. Lamek would be good enough to put it in front of you. Can you find page 3233?

A. Yes.

Q. At line 15, Mr. Lamek says:

"Q. Doctor, did you not ask the question of yourself? Did you say how did the child get that digoxin?

A. Yes.

Q. How did you answer it for your own purposes in your own mind?

A. I didn't know how the child got that. It didn't seem to me likely that that could be except by it was an obvious overdose.



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"Q. Yes.

A. It seemed to me it was an obvious overdose at the time and the overdose could be through a mistake or intentionally, and I think we understood that those matters were being investigated very promptly."

And then Mr. Lamek asks you a question and you give the answer:

"A. We talked about that a great deal as to what might happen in terms of an accident, and one of the obvious ways is during resuscitation."

Q. Yes.

A. Because during resuscitation manoeuvres there is a great opportunity for errors in dosage to occur."

Now, let me just stop you there because you have told me already, I believe with respect to, I think it was Baby Pacsai, but perhaps Baby Inwood, that one of the things you thought about either at the time or subsequently was the possibility of an error during resuscitation. Do you recall telling me that a few moments ago?

A. Yes.



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Q. And I take it that you would agree with me and from your statement it appears that you would that resuscitation efforts when they take place, it is a very tension filled and high pressure occurrence. I'm not using very good words but how would you describe the resuscitation efforts?

A. Well, one hopes it is a reasonable disciplined effort, but obviously when somebody is about to die or dying, there is tremendous tension.

Q. And there are a number of people involved at the time?

A. There are, yes.

Q. As many as 8 or 10 perhaps?

A. Perhaps that many.

Q. I beg your pardon?

A. Perhaps that many.

Q. Doctors and nurses?

A. Yes.

Q. Things are happening very quickly, is that not?

A. Yes.

Q. The doctors may be administering one drug at one moment and another very shortly after?



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Q. This whole process of electric shock is going on, defibrillation may happen from time to time?

A. Yes.

Q. As the doctors are administering drugs they are calling for the nurses to draw them up, measure them and hand them the syringes?

A. Yes.

Q. And I take it you would agree with me that, as you have said really, that is a scenario in which medication errors can happen?

A. Yes, I think that - I'm not sure how much documentation there is on that but I believe the pharmacologists are the people to confirm that possibility.

Q. Well, even in your own experience, Doctor, it is something that happens, is it not?

A. Yes.

Q. In fact, in this particular evidence we have seen at least one incident, the Velasquez incident where perhaps it was not a Code 25 or a cardiac arrest but in an emergency situation an error was made?

A. Yes.



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Q. So, certainly one of the things that you considered when you were looking at Allana Miller was the possibility at least of a medication error occurring at the time of the arrest?

A. Yes.

Q. And, again, looking at this particular chart, I don't think I have been able to find a list of the medications that were administered to this baby at the time of the arrest. Unless, wait a minute now, hold it. Can you look at page 40.

A. Yes.

Q. Is that what the medication list would look like?

A. It is usually written on a plain sheet but I guess that's the official form.

Q. It is called a CPR sheet. It looks to me as though it's almost written sideways. The person filling it in has filled it in slightly upside down.

A. Yes.

Q. In any event, does that appear to you to be the sort of record one would expect to be kept at the time of the cardiac arrest?

A. Yes.

Q. And we can see on the left



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hand side written in the times at which the various
medications were given?

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A. Yes.

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Q. And it looks as though,

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a number of things can be administered in very
short order?

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A. Yes, especially if someone is
not responding.

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Q. You are trying to get some

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sort of a response out of a patient and if you don't
get a response you may give the patient some more
or something else?

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A. Yes.

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Q. And again one of the things

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that's been given in this case on a number of occasions
is apparently adrenaline?

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A. Yes.

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Q. Or epinephrine.

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A. Yes, epinephrine.

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Q. Can you tell from this

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record, Doctor, whether any of these medications were
administered directly into the baby's heart?

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A. I can't tell from that record

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I don't think.

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Q. Is that something that

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happens in a cardiac arrest that you may administer
drugs directly into the heart?

A. Yes.

Q. Is adrenaline one of the
drugs that you would do that with?

A. Yes.

Q. I wonder if I could refer
you to Dr. Bain's report, page 39.

Now, you don't have that in front of
you, or do you, Doctor?

A. No, I don't.

MR. STRATHY: Mr. Commissioner,
do you have it?

~.05" is even in this H/s — and is
correctly stated as ~0.5" at p. 39
of Bain Report.



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DM/cr

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Q. I will read it to you, Doctor.
Dr. Bain is talking about the digoxin levels in some
of these babies and what he says is this:

"Based on reviews of the case records,
analytical data on digoxin, weight of
the patients..."

I am sorry, this isn't Dr. Bain, this comment is
made by the clinical pharmacology department at the
hospital at the hospital which were incorporated into
Dr. Bain's report?

A. Yes.

Q. So they say:

"Several alternative explanations in
addition to Dr. Hastreiter's exist for
the blood levels which were found..."

And these are the digoxin levels:

"Firstly all blood levels obtained can
be explained by administration of a
single vial of digoxin (for most
infants) a single vial of adult strength
.05 millograms shortly before death by
intravenous bolus.

NO! 0.5mg

Two, data do not permit exact timing
of administration. Doses could have
been given prior to or during



1
2 "resuscitation efforts. Extremely high
3 level achieved in one infant, Inwood
4 is strongly suggestive of administration
5 very near time of death.

6 This is also suggested in several
7 places in the testimony the important
8 difference here however is we believe
9 the level can be accounted for by a
10 single vial rather than multiple vials.
11 And intravenous bolus of 8 milligrams
12 of digoxin (32 millilitres) is physically
13 highly unlikely and kinetic modelling
14 of an infusion is similarly unsatisfactory
15 to explain the level.

16 Thirdly, therefore several different
17 hypothesis have to be considered in
18 interpreting the blood levels in terms
19 of amount, timing and intent. It would
20 seem unlikely that administration of
21 multiple vials where accident could
22 occur. If however a single vial can
23 account for the levels achieved then
24 either accidental or intentional over-
25 dose is a possibility.

Vials of digoxin resemble vials of



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"many different emergency medicines and there is ample literature on confusion of ampoules of different drugs in a variety of clinical circumstances."

Now just to stop there, Doctor, that suggests to me at least that the clinical pharmacology department at the hospital suggests that one possibility, and I don't put it any more than a possibility, one possibility that should be looked at is the possibility of some confusion of digoxin with some other medication at the time of these arrests, is that your understanding of what they are saying?

A. Yes.

Q. And based on what you have seen, Doctor, would you agree that that should simply be considered as a possibility?

A. Yes.

Q. May I take you one step further and ask you would you agree that vials of digoxin may well resemble other medications used at the time of the cardiac arrest?

A. Yes, I think I would.

MR. STRATHY: Thank you, those are my questions for the day, Mr. Commissioner.



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THE COMMISSIONER: Thank you.

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MR. STRATHY: As I say I think I

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might be another hour and a half or so in the morning.

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THE COMMISSIONER: Yes, yes. I'm just

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wondering while we are on the subject why you are

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saying vials of digoxin, what has this to do with

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taking the vials that we do have, the ampoules, is an

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ampoule the same thing as a vial?

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THE WITNESS: Yes.

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THE COMMISSIONER: I thought I understood

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for you to say that at least to get to the level

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of the Inwood child it would take either five or ten

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of those vials, is that right?

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MR. STRATHY: I think if I may, Mr.

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Commissioner, what I suggested to Dr. Rowe was the

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evidence of Dr. Hastreiter that to get to the level

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of Inwood you would need 200 of the paediatric ampoules

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and 20 of the adult.

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THE COMMISSIONER: Yes.

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MR. STRATHY: Now, what I understand

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the pharmacology department to be saying is that

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those levels may be explained by a single adult vial,

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very very near the time of death. Is that what you

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understood, Doctor?

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THE WITNESS: That is my understanding

of that.



Rowe, ex.
(Strathy)

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MR. STRATHY: In other words when I say very very near, I mean very close to the time of death, in other words at the time of the arrest.

MR. TOBIAS: Mr. Commissioner, have we any indication as to how we are going to, maybe Mr. Bogart can speak for Mr. Sopinka, or Mr. Hunt can give us some indication of how long we are likely to be.

THE COMMISSIONER: We will try them out I guess.

MR. TOBIAS: While we are on the subject, Mr. Commissioner and if we might also ask counsel to direct themselves to the order in which we are proceeding. I am somewhat confused as to whether we are going in the order of the new seating arrangement here or the seating arrangements we had in Court Room No. 20.

THE COMMISSIONER: I thought people moving around were trying to tell me something, but maybe they are not.

MR. TOBIAS: I am also aware that it was your view that perhaps the counsel representing parents should cross-examine last.

THE COMMISSIONER: That I thought would be the order but again it is something - I understand, he hasn't said anything about it, but I understand Mr.



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Manning has some problem.

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MR. TOBIAS: Mr. Manning's problem if
I may presume to speak for his office.

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THE COMMISSIONER: Mr. Labow is here.

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MR. TOBIAS: Is his availability next
week. And I was about to ask if you do prefer those
counsel to cross-examine last, perhaps those counsel
can amongst themselves work out the order in which
they wish to proceed.

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THE COMMISSIONER: There is no problem
with that, you can always work out the order you want
to go in and if everybody agrees there is no problem.
I must say I once fondly hoped we would be finished
this week and perhaps that fond hope is rapidly
evaporating. Mr. Labow, when is it that Mr. Manning
is not available?

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MR. LABOW: Mr. Manning is not available
as of Thursday and all of next week.

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THE COMMISSIONER: Of this week?

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MR. LABOW: Of this week.

THE COMMISSIONER: I don't think that
is a problem. I just want to say to everybody that I
will certainly try to accommodate any counsel who is
not available, but if no accommodation is made before-
hand and we simply come to the end of the hearing and



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2 he is not here, then he doesn't participate, it is as
3 simple as that.

4 MR. LABOW: Mr. Manning's problem,
5 Mr. Commissioner, is that he will be at the Canadian
6 Bar Association meeting.

7 THE COMMISSIONER: That may well be,
8 but I consider the Canadian Bar Association a frivolity
9 and this serious business. So if he wants to cross-
10 examine he either has to make arrangements with somebody
11 to fit himself in or to - I hope I am not being too
12 stern about this. One of the problems ---

13 MR. LABOW: One of the problems that
14 he has, Mr. Commissioner, is that we don't have a
15 good idea when he would come up in the general order.

16 THE COMMISSIONER: No. All I can say
17 is he has got to sort himself out before next Thursday.
18 Because if next Thursday turns out to be the last
19 day and he is not here, he is at the Bar Association,
20 we go on to the next witness.

21 MR. LABOW: Well Mr. Manning's problem
22 is he won't be here this Thursday, next Tuesday,
23 Wednesday or Thursday.

24 THE COMMISSIONER: Well he has a problem.

25 MR. LABOW: A definite problem.

THE COMMISSIONER: He has a problem which



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2 he will have to somehow sort out. Perhaps you will
3 be the answer to his problem.

4 MR. LABOW: I may be, sir. If it can
5 be arranged with counsel, one of the possibilities is
6 that Mr. Manning cross-examine tomorrow if he is
7 available. I am told that is a problem because the
8 Attorney General and Mr. Percival would like to go
before Mr. Manning, that is my understanding.

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9 MR. HUNT: It has nothing to do with
10 Mr. Manning, I am ready to go tomorrow and I have
11 other plans for next week too.

12 THE COMMISSIONER: I just indicated to
13 you he has a problem.

14 MR. LABOW: I will discuss it with him
15 soon.

16 MR. TOBIAS: I am not sure that we
17 have really directed ourselves to the question that
I raised.

18 THE COMMISSIONER: No, the question
19 you raised is in what order do people normally go in.

20 MR. TOBIAS: Yes.

21 THE COMMISSIONER: And the order as I
22 understand it is Mr. Bogart, or probably Mr. Sopinka
23 next, followed by the Attorney General, followed by
24 the Police, followed by the, I guess by the Nurses and
25 the Nursing Assistants, and then we have counsel for
Mrs. Christie and Miss Brownless and I think at that



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point we have exhausted everybody but the parents.

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MR. TOBIAS: The other part of my question is whether that is the arrangement you prefer to see for this particular witness or whether that will be the order for all future witnesses.

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THE COMMISSIONER: Well it is the way we started out and it seems to be a reasonable way to start out. I want you to understand, Mr. Tobias, there may be circumstances. For instance I don't think the parents, their interests are not going to be adversely affected under any circumstances, but there may well be certain counsel whose clients will be adversely affected by the evidence of some particular witness. If they ask me to go last they will probably be successful, but they should have an opportunity to reply to anything that is given by any of the witnesses against them. So I won't make it a permanent arrangement but as that is the ordinary arrangement.

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MR. TOBIAS: Subject to variations we can consider that will be the ordinary order?

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THE COMMISSIONER: That will be the ordinary order and one can apply at any time and it may be perfectly obvious in some instances that some counsel should be given the opportunity to go last in the cross-examination.



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MR. BUHR: Just one last thing, Mr. Commissioner, the reference to the nurses proceeding after counsel for the Police. Was that intended to be a reference as well to Mrs. Scott, a nurse on the Trayner team?

THE COMMISSIONER: No, no. I am sorry I forgot about that. I don't really care, which would you prefer?

MR. BUHR: I don't expect to be very long.

THE COMMISSIONER: It seems sensible for all of the Trayner team to go one after another before we even go into the Attorney General, but we just got into the habit because that was the order that they were in. Let's think about it and sort it out tomorrow. 10 o'clock.

---Whereupon the hearing adjourned until 10:00 a.m. Wednesday, the 24th day of August, 1983.

